US009262539B2

(12) **United States Patent**
Ayers et al.

(10) **Patent No.: US 9,262,539 B2**
(45) **Date of Patent: Feb. 16, 2016**

(54) **MOBILE DEVICE AND SYSTEM FOR RECORDING, REVIEWING, AND ANALYZING HUMAN RELATIONSHIP**

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(73) Assignee: **UfaceMe, Inc.**, Minneapolis, MN (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/816,608**

(22) Filed: **Aug. 3, 2015**

(65) **Prior Publication Data**

US 2015/0339396 A1 Nov. 26, 2015

Related U.S. Application Data

(63) Continuation-in-part of application No. 13/459,381, filed on Apr. 30, 2012, now Pat. No. 9,099,011.

(60) Provisional application No. 61/480,555, filed on Apr. 29, 2011.

(51) **Int. Cl.**

G09B 5/00	(2006.01)
G06F 17/30	(2006.01)
H04L 29/06	(2006.01)
G06F 3/0484	(2013.01)
G06F 3/0488	(2013.01)
H04L 29/08	(2006.01)
H04N 7/18	(2006.01)

(52) **U.S. Cl.**

CPC ***G06F 17/30867*** (2013.01); ***G06F 3/0488*** (2013.01); ***G06F 3/04842*** (2013.01); ***G06F 17/3053*** (2013.01); ***H04L 65/60*** (2013.01); ***H04L 67/10*** (2013.01); ***H04N 7/185*** (2013.01)

(58) **Field of Classification Search**

USPC 434/309, 310

See application file for complete search history.

(56) **References Cited**

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Written opinion for International application No. PCT/US2012/035737, dated Nov. 26, 2012 (6 pages).

Primary Examiner — Kesha Frisby

(74) *Attorney, Agent, or Firm* — Hamre, Schumann, Mueller & Larson, P.C.

(57) **ABSTRACT**

Two parties have three distinct viewpoints of their relationship, from which assumptions emerge and working hypotheses about how to manage their relationship. The system, device, and method described herein include using a computer system for understanding face-to-face human interactions. The process includes using a mobile device connected to a server in a network for reviewing an audio-video recording of an interaction with one or more other persons, whereby one or more of the participants use the mobile device to describe their viewpoints of the interaction. The participants use the mobile device to receive immediate feedback for analysis, to compare viewpoints, to examine how the viewpoints are arrived, and to explore the viewpoints' consequences for the participants' relationship.

29 Claims, 23 Drawing Sheets

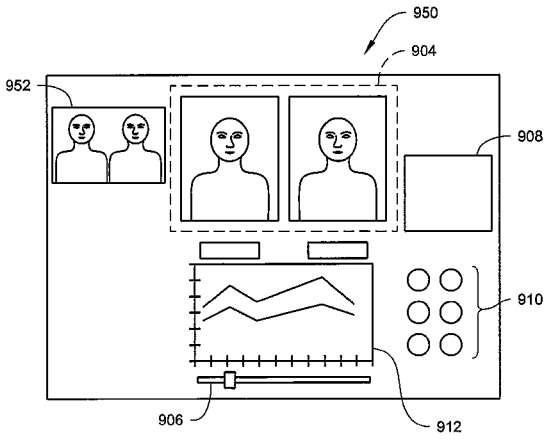


Fig. 1

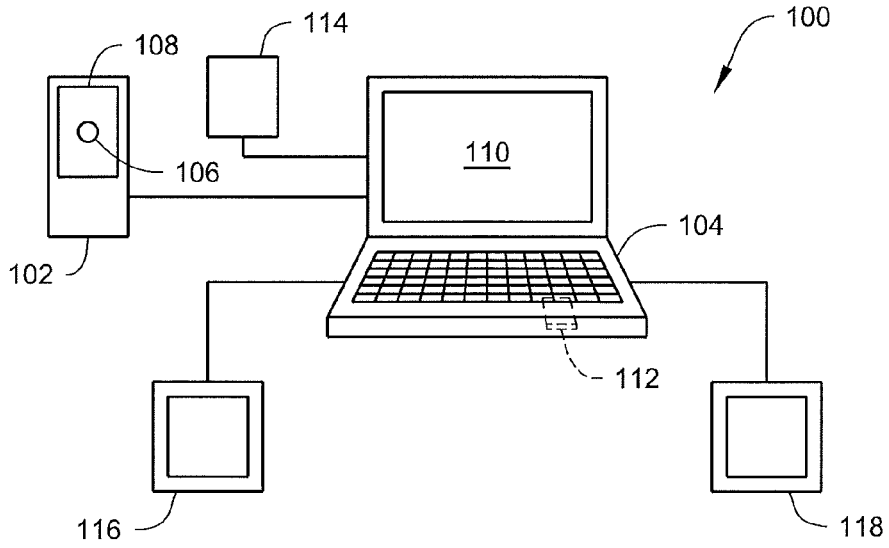

100
108
114
106
110
102
104
112
116
118

Fig. 2

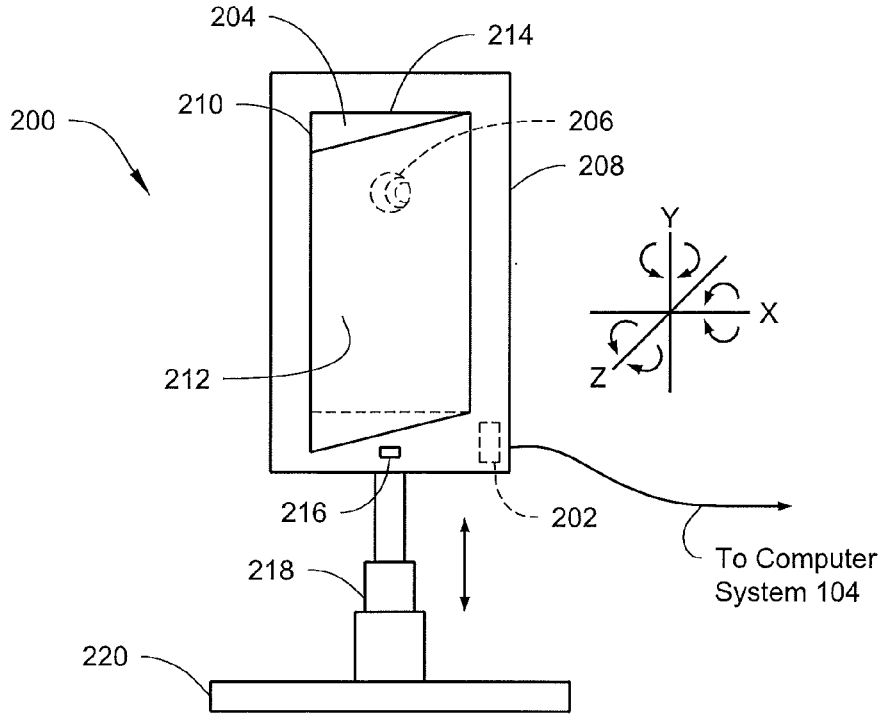

204
214
210
200
206
208
Y
X
Z
212
216
202
To Computer System 104
218
220

Fig. 3

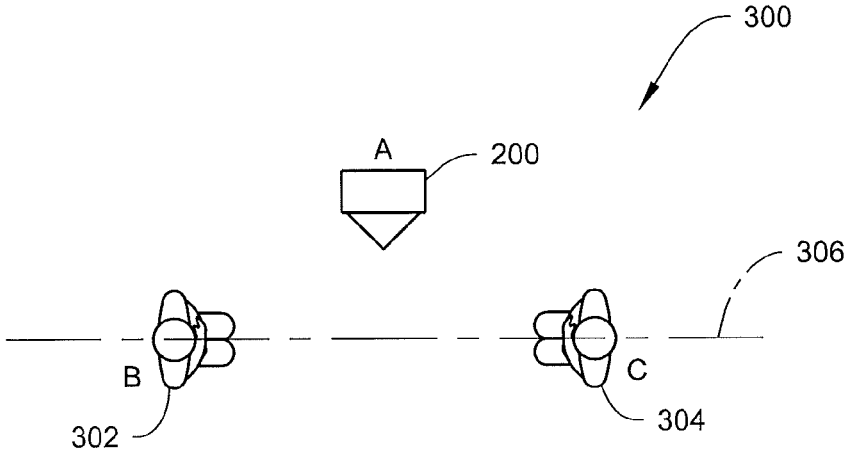


Fig. 4

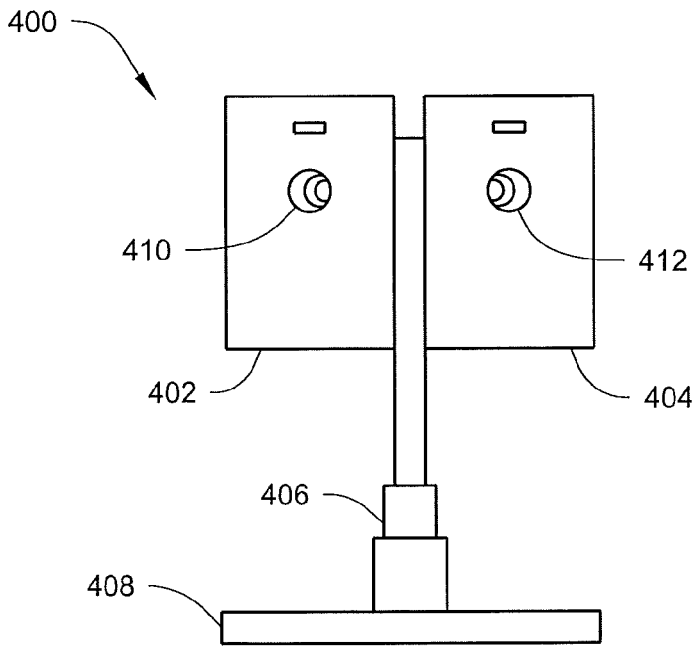


Fig. 5

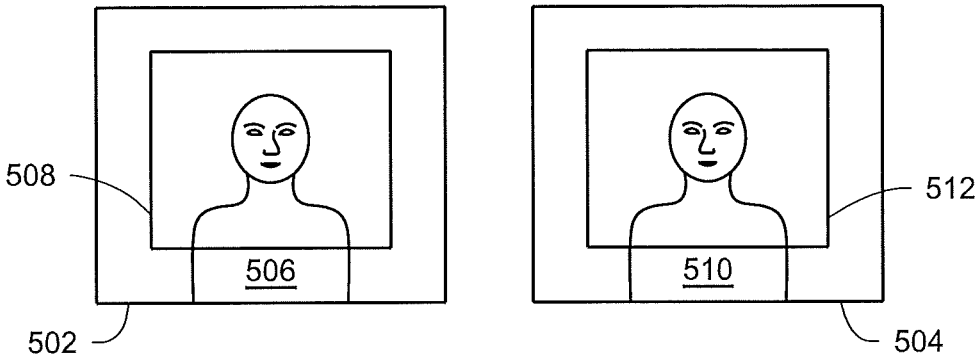


Fig. 6

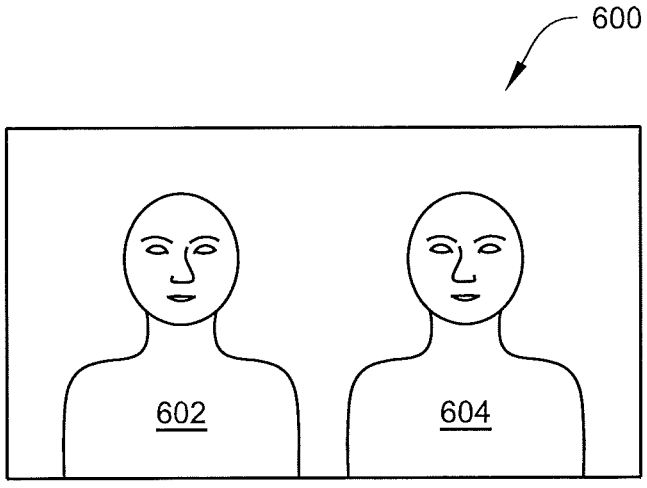


Fig. 7

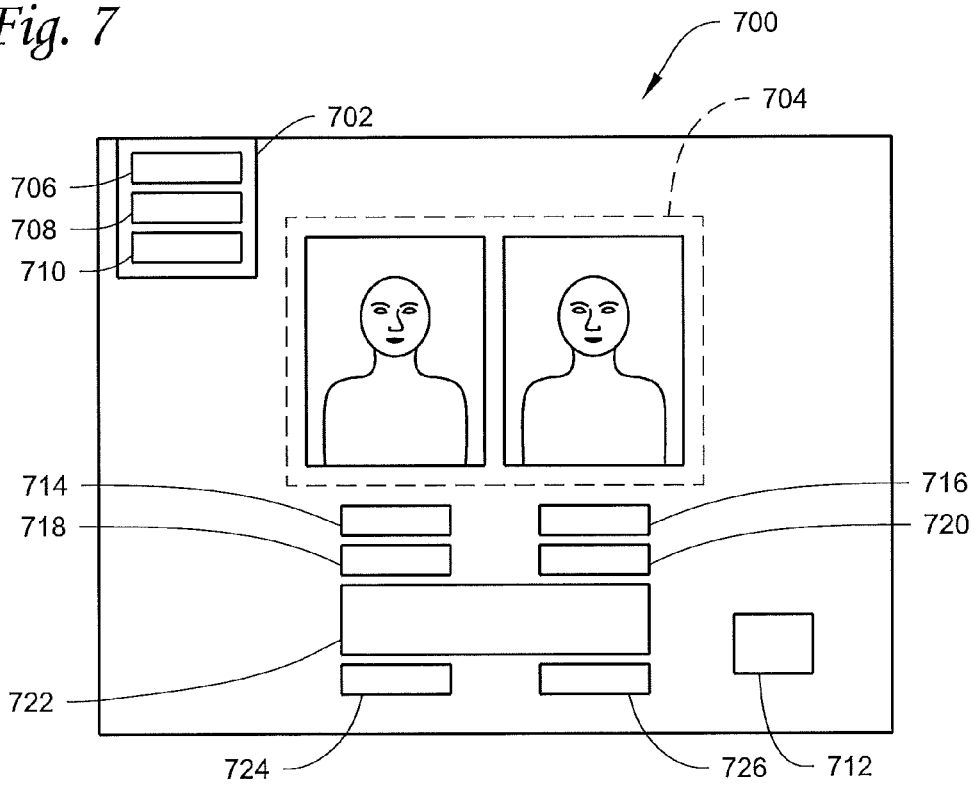

700
704
702
706
708
710
714
716
718
720
722
724
726
712

Fig. 8

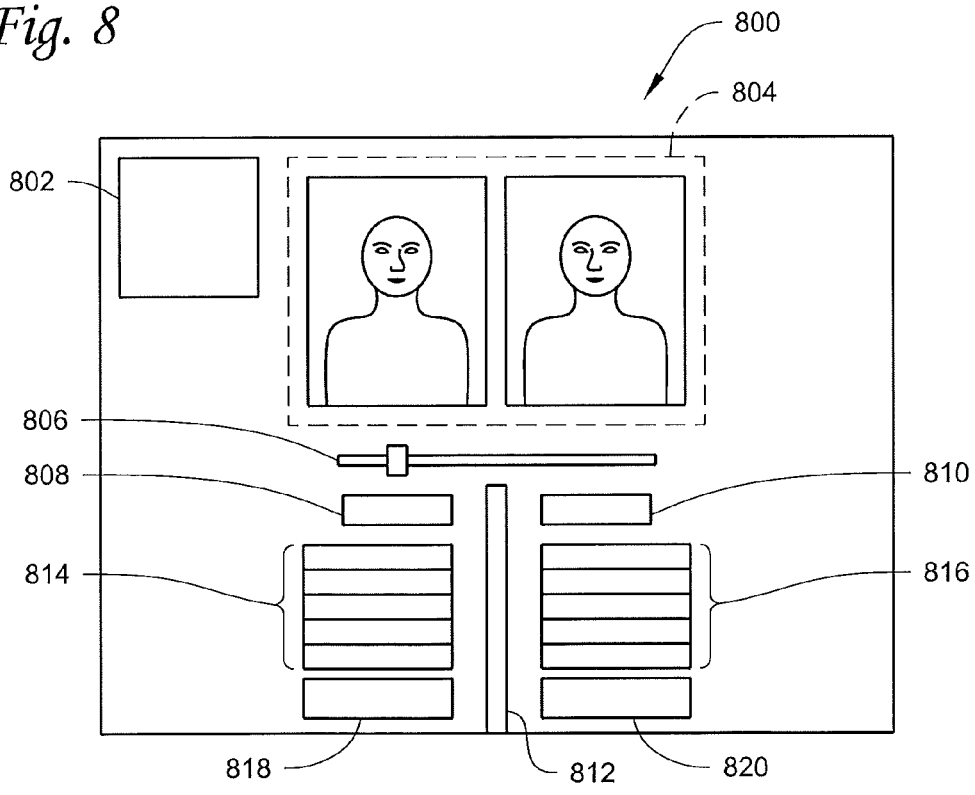

800
804
802
806
808
810
814
816
818
812
820

Fig. 9A

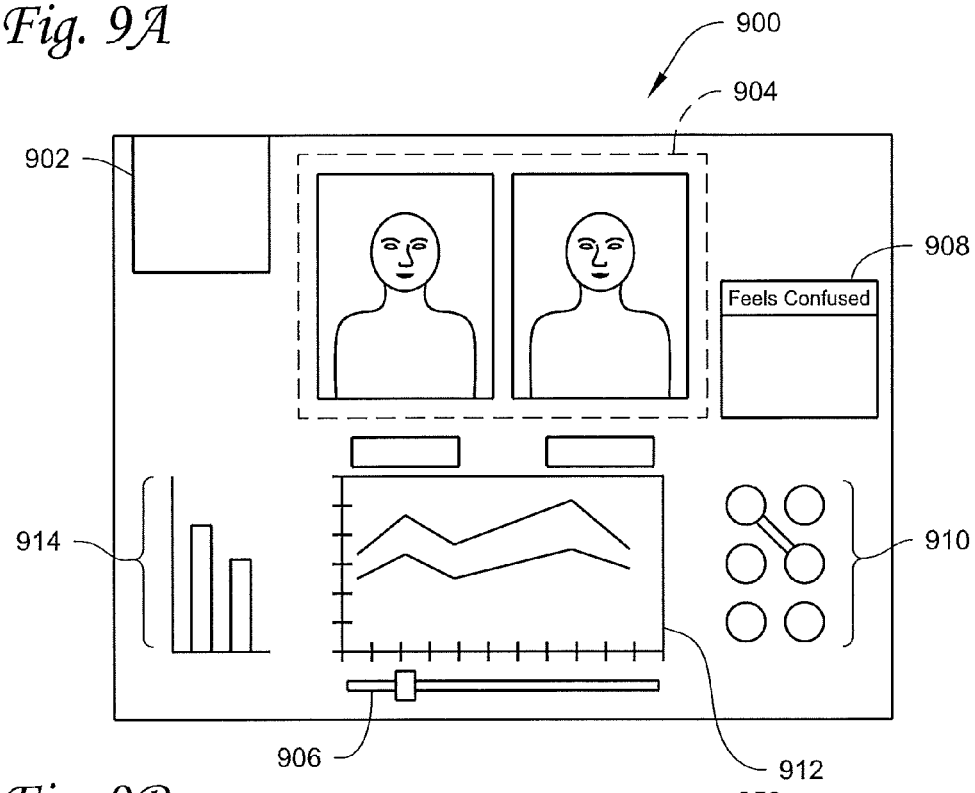

900
904
902
908
Feels Confused
914
910
906
912

Fig. 9B

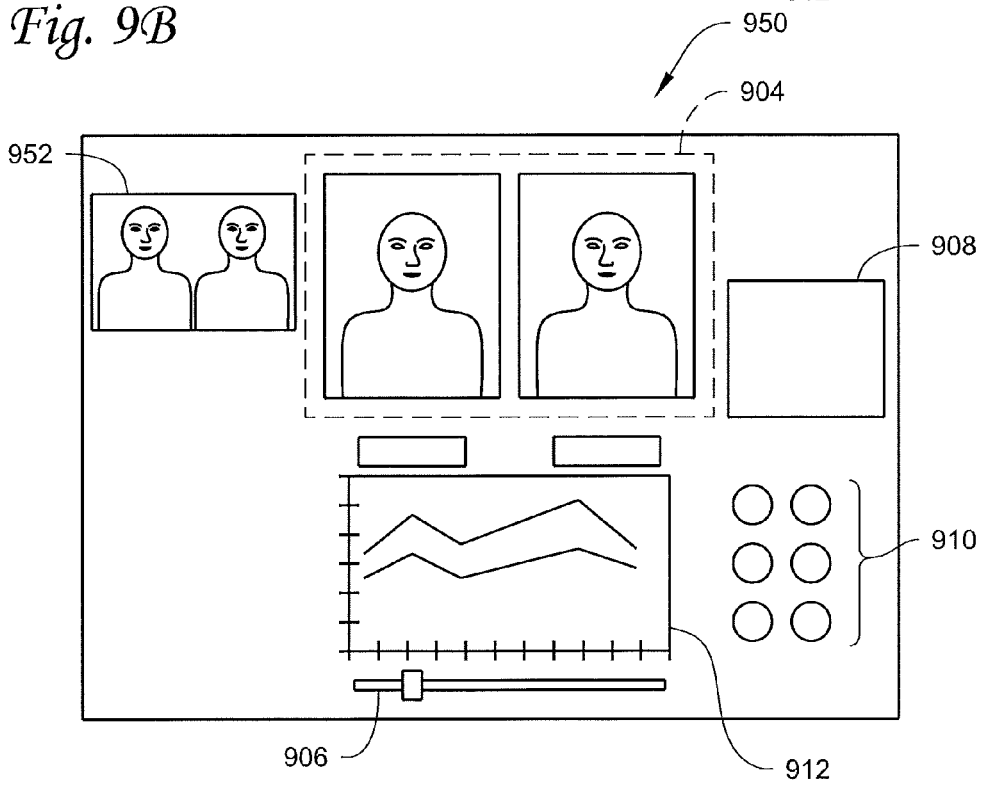

950
904
952
908
910
906
912

Fig. 10

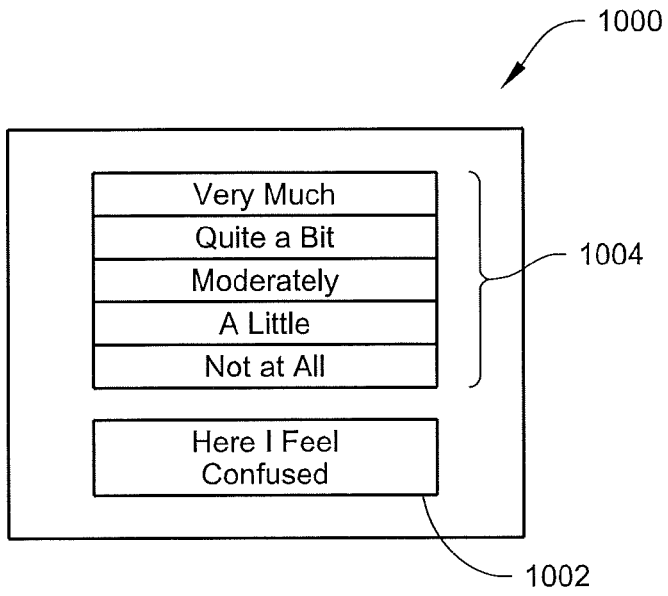

1000
Very Much
Quite a Bit
Moderately
A Little
Not at All
1004
Here I Feel Confused
1002

Fig. 11

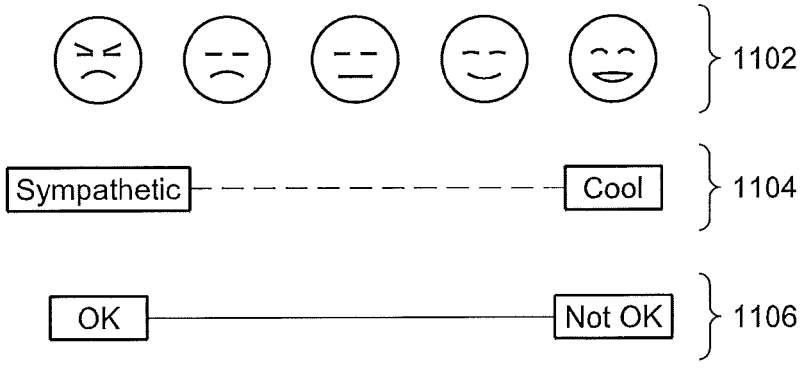

1102
Sympathetic
Cool
1104
OK
Not OK
1106

Fig. 12

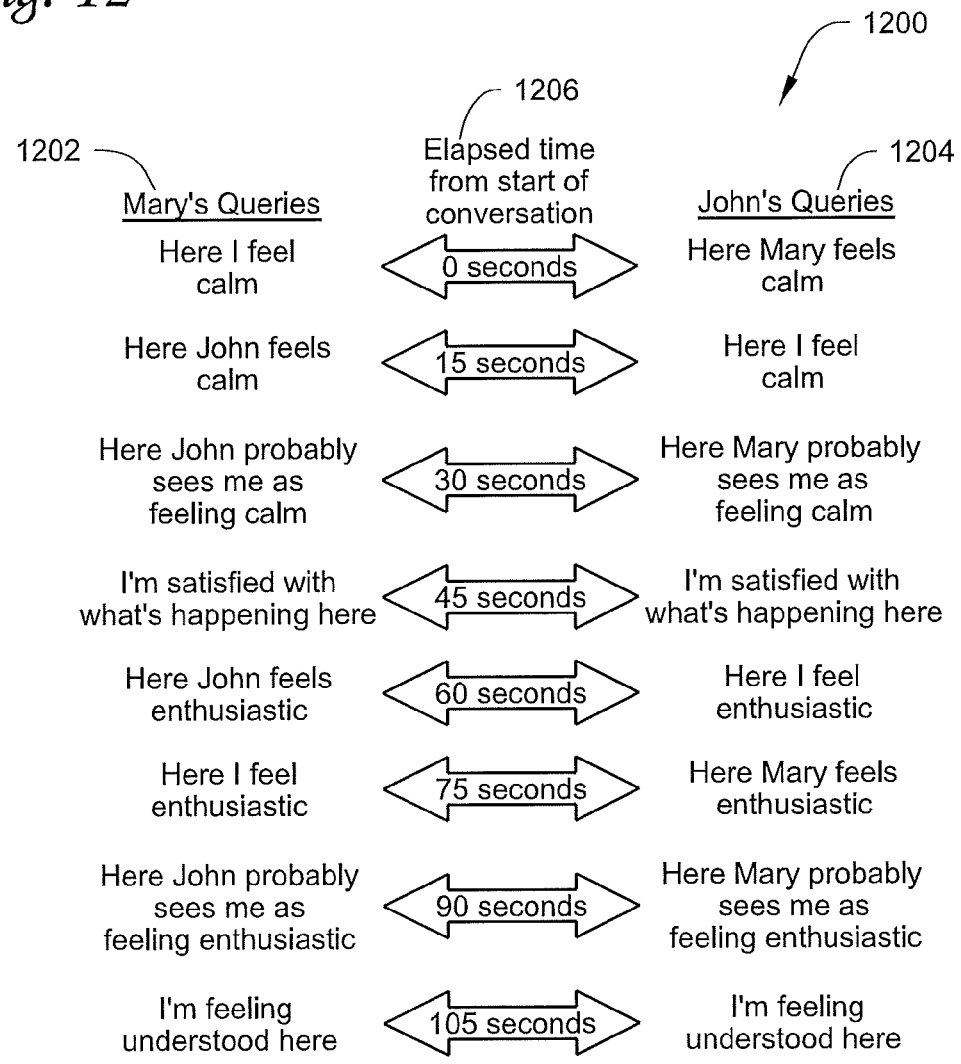

1200
1206
1202
Elapsed time from start of conversation
1204
Mary's Queries
John's Queries
Here I feel calm
0 seconds
Here Mary feels calm
Here John feels calm
15 seconds
Here I feel calm
Here John probably sees me as feeling calm
30 seconds
Here Mary probably sees me as feeling calm
I'm satisfied with what's happening here
45 seconds
I'm satisfied with what's happening here
Here John feels enthusiastic
60 seconds
Here I feel enthusiastic
Here I feel enthusiastic
75 seconds
Here Mary feels enthusiastic
Here John probably sees me as feeling enthusiastic
90 seconds
Here Mary probably sees me as feeling enthusiastic
I'm feeling understood here
105 seconds
I'm feeling understood here

Fig. 13

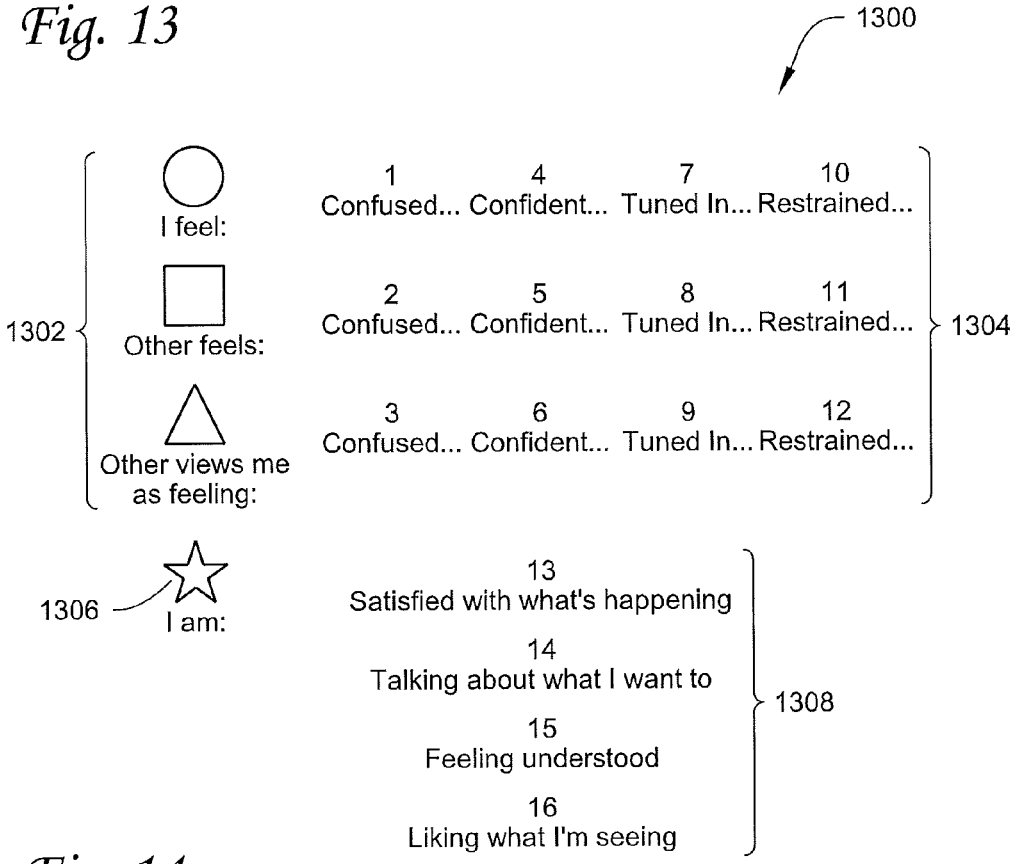

1300
1302
I feel:
Other feels:
Other views me as feeling:
1
Confused...
4
Confident...
7
Tuned In...
10
Restrained...
2
Confused...
5
Confident...
8
Tuned In...
11
Restrained...
3
Confused...
6
Confident...
9
Tuned In...
12
Restrained...
1304
1306
I am:
13
Satisfied with what's happening
14
Talking about what I want to
15
Feeling understood
16
Liking what I'm seeing
1308

Fig. 14

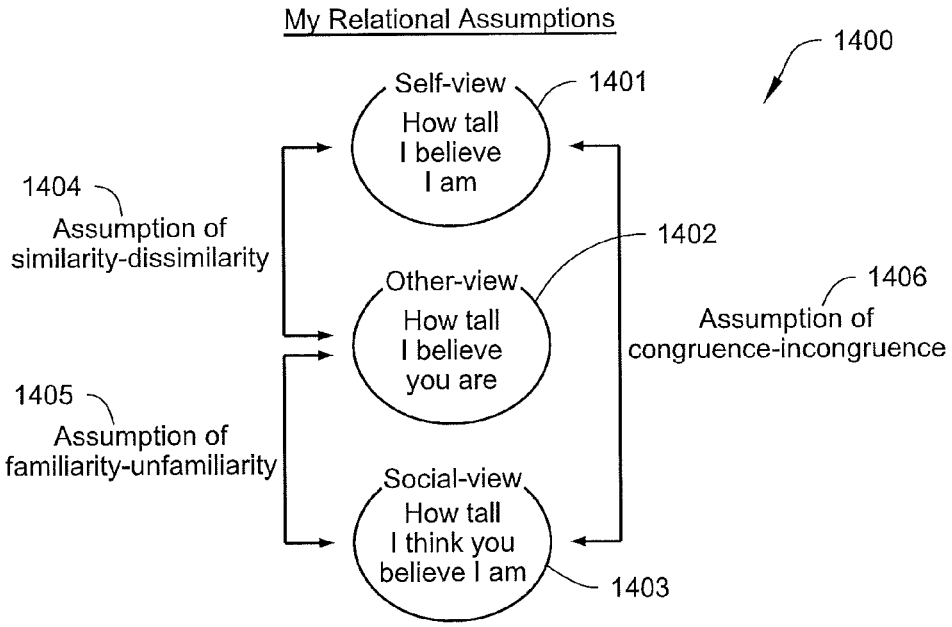

My Relational Assumptions
1400
Self-view
How tall I believe I am
1401
Other-view
How tall I believe you are
Social-view
How tall I think you believe I am
1403
1402
1404
Assumption of similarity-dissimilarity
1405
Assumption of familiarity-unfamiliarity
1406
Assumption of congruence-incongruence

Fig. 15

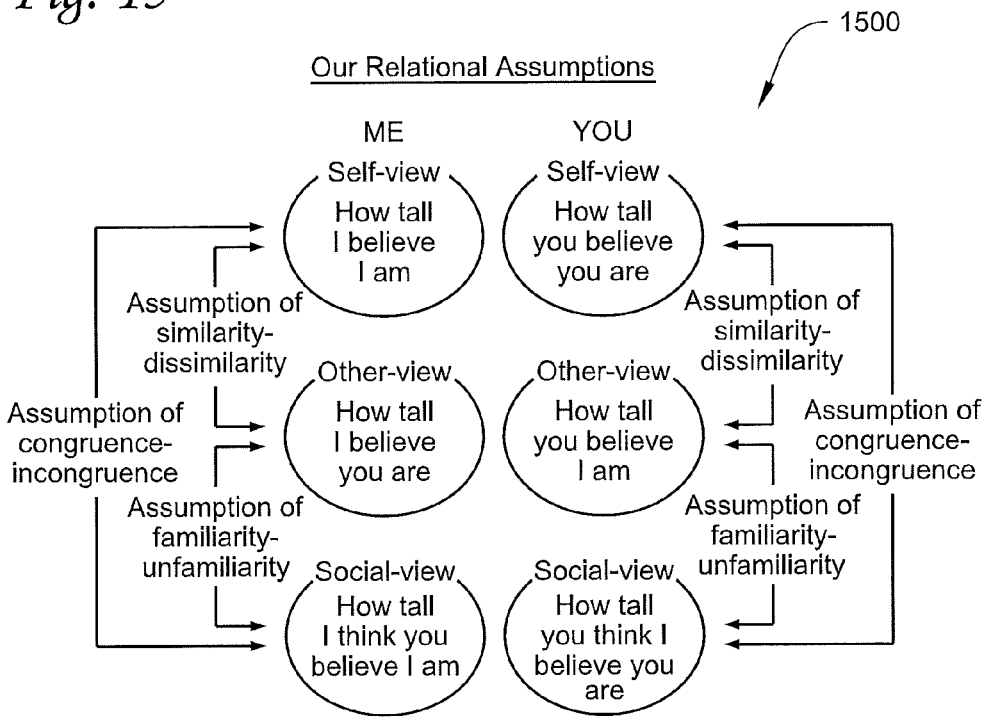
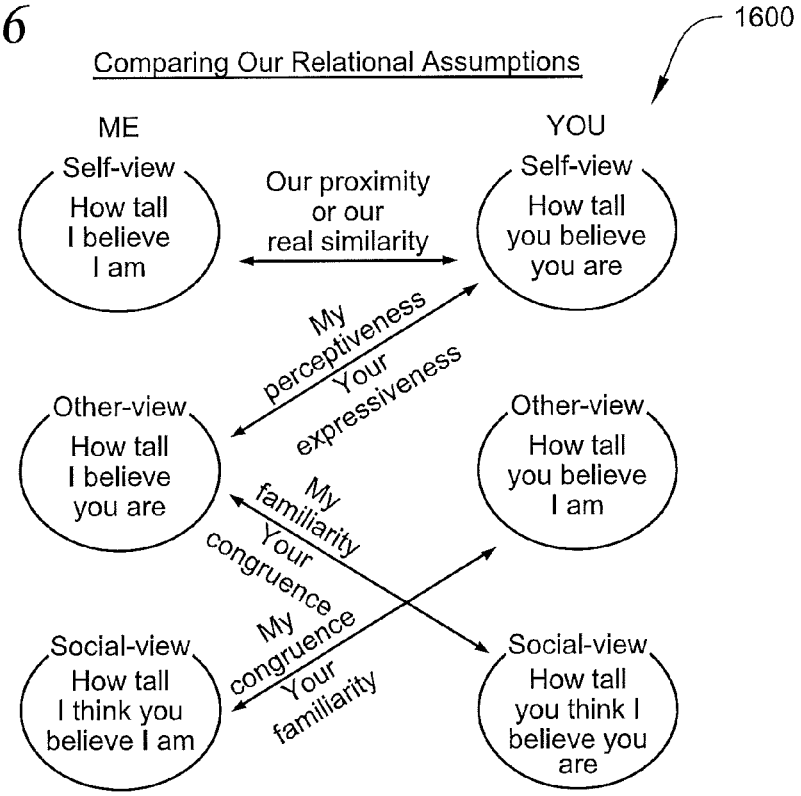

1500
Our Relational Assumptions
ME
YOU
Self-view
How tall I believe I am
Self-view
How tall you believe you are
Assumption of similarity-dissimilarity
Assumption of similarity-dissimilarity
Other-view
How tall I believe you are
Other-view
How tall you believe I am
Assumption of congruence-incongruence
Assumption of congruence-incongruence
Assumption of familiarity-unfamiliarity
Assumption of familiarity-unfamiliarity
Social-view
How tall I think you believe I am
Social-view
How tall you think I believe you are

Fig. 16


1600
Comparing Our Relational Assumptions
ME
YOU
Self-view
How tall I believe I am
Our proximity or our real similarity
Self-view
How tall you believe you are
My perceptiveness
Your expressiveness
Other-view
How tall I believe you are
Other-view
How tall you believe I am
My familiarity
Your congruence
My congruence
Your familiarity
Social-view
How tall I think you believe I am
Social-view
How tall you think I believe you are

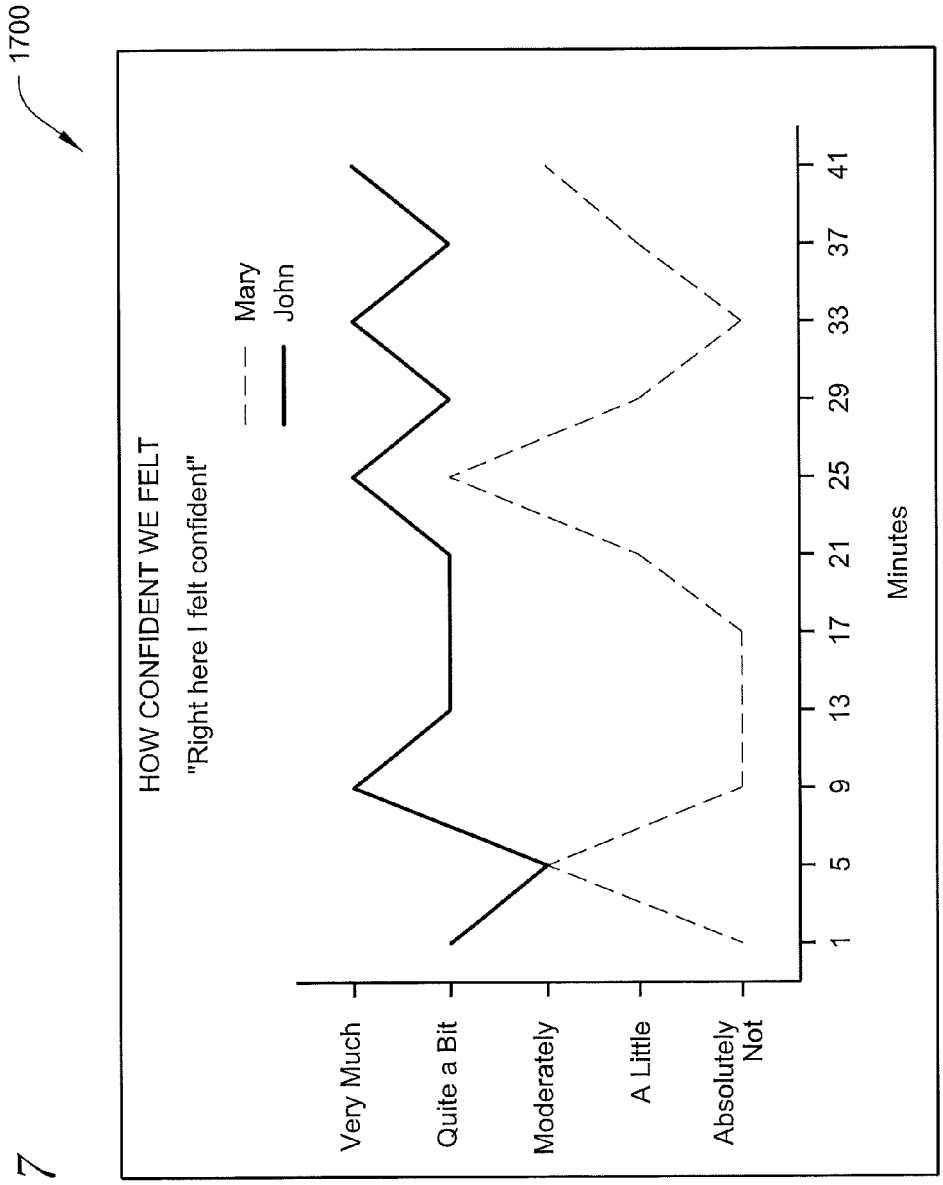

1700
HOW CONFIDENT WE FELT
"Right here I felt confident"
Mary
John
Very Much
Quite a Bit
Moderately
A Little
Absolutely Not
1
5
9
13
17
21
25
29
33
37
41
Minutes

Fig. 17

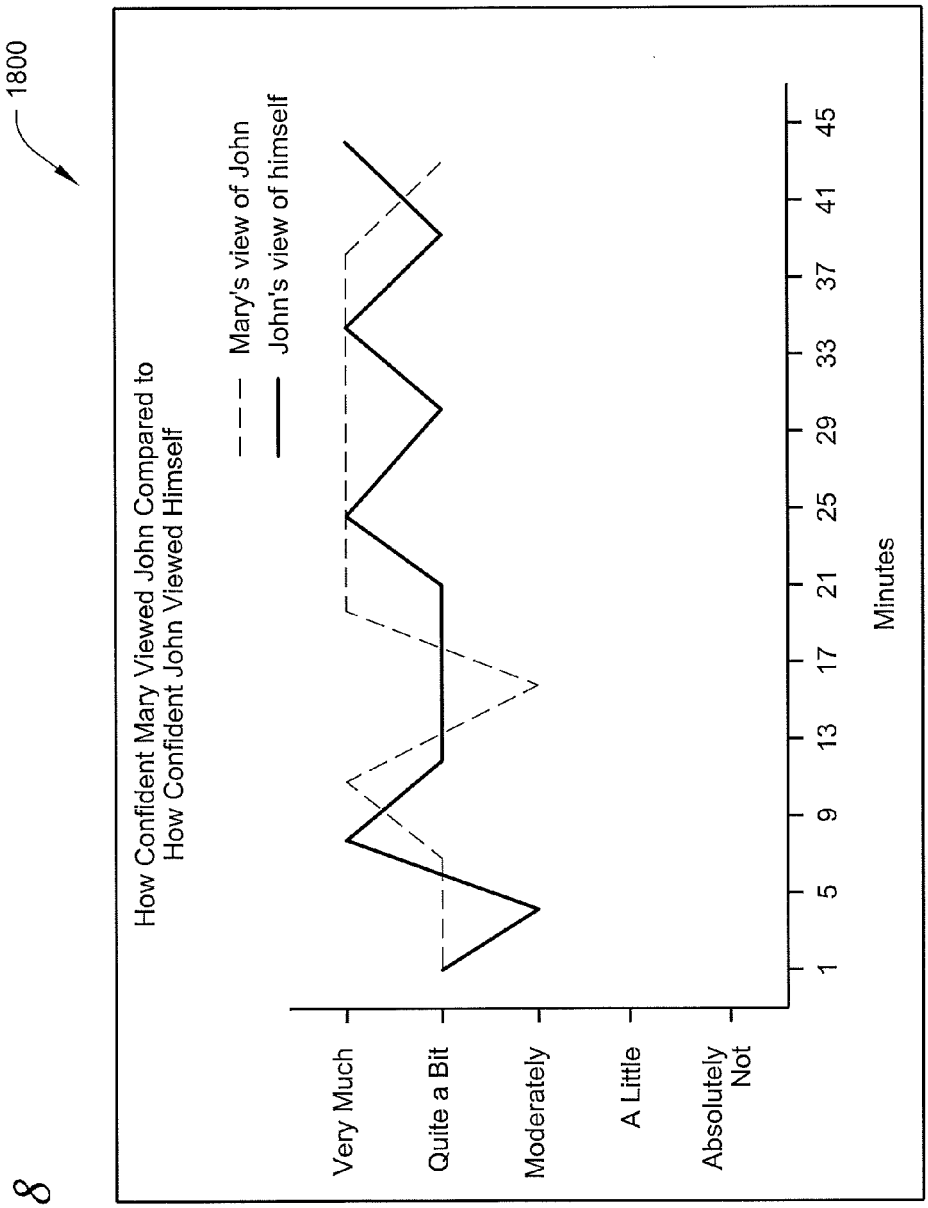

1800
How Confident Mary Viewed John Compared to How Confident John Viewed Himself
Mary's view of John
John's view of himself
Very Much
Quite a Bit
Moderately
A Little
Absolutely Not
1
5
9
13
17
21
25
29
33
37
41
45
Minutes

Fig. 18

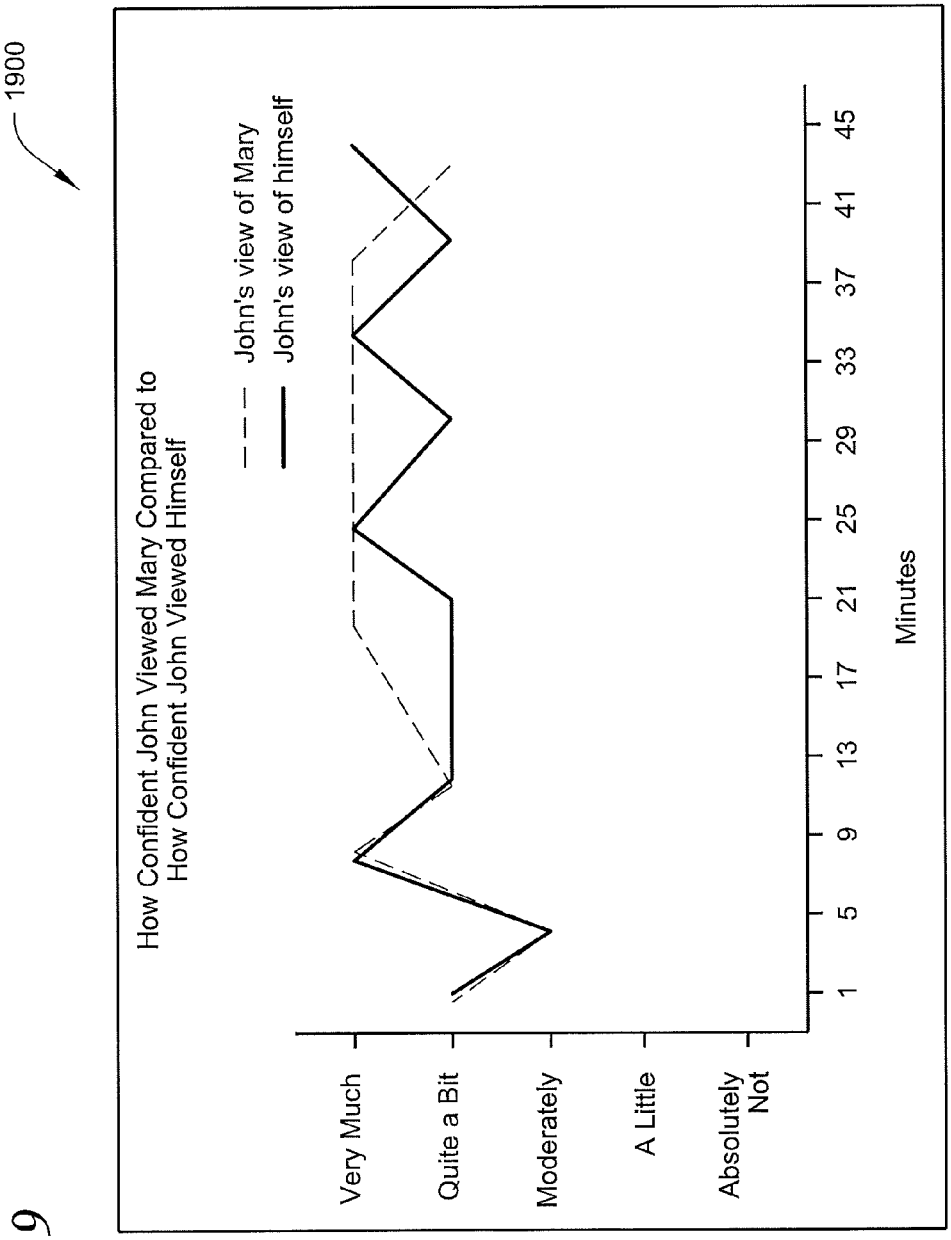

1900
How Confident John Viewed Mary Compared to How Confident John Viewed Himself
John's view of Mary
John's view of himself
Very Much
Quite a Bit
Moderately
A Little
Absolutely Not
1
5
9
13
17
21
25
29
33
37
41
45
Minutes

Fig. 19

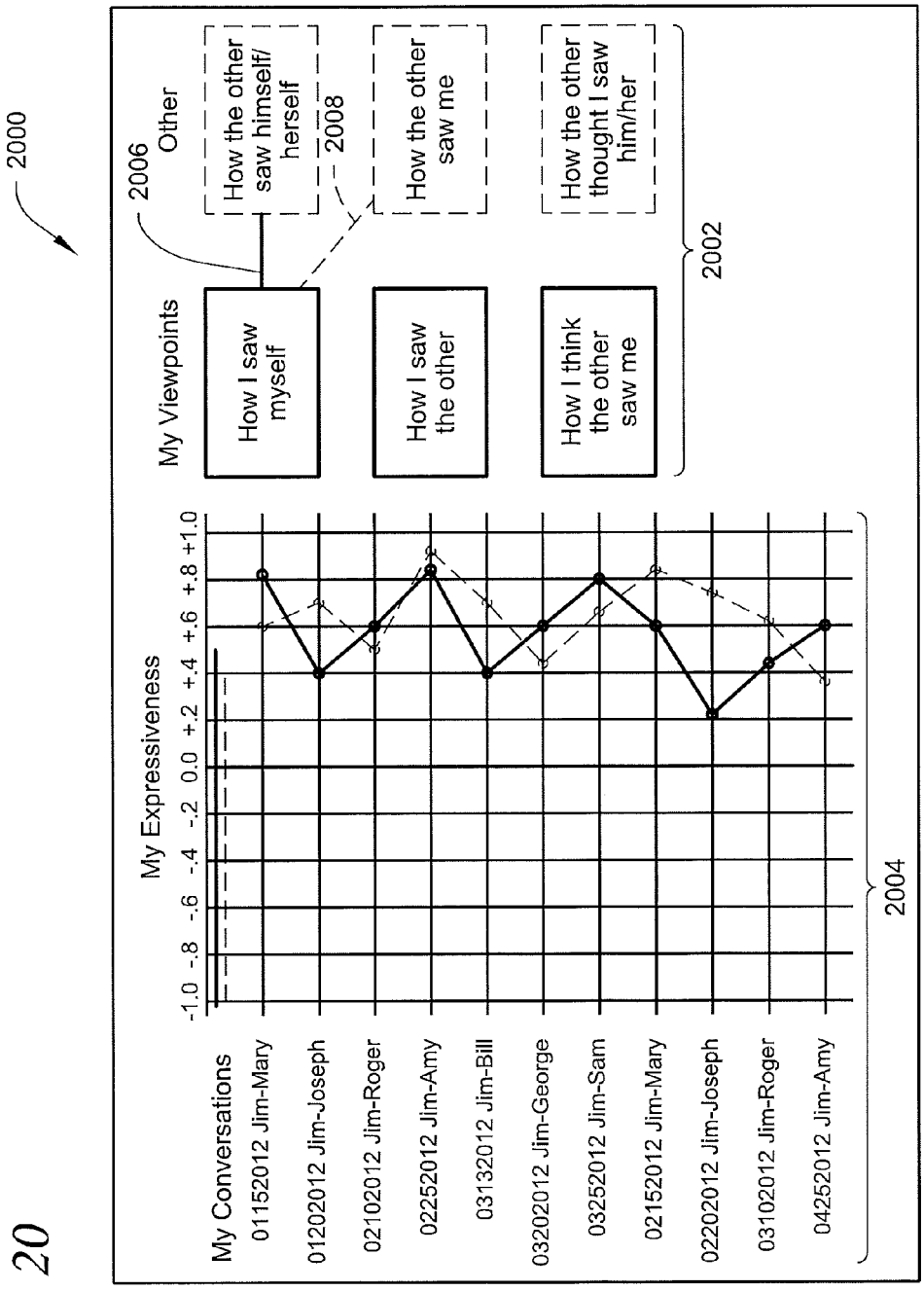

2000
2006
Other
How the other saw himself/ herself
2008
How the other saw me
How the other thought I saw him/her
2002
My Viewpoints
How I saw myself
How I saw the other
How I think the other saw me
My Expressiveness
-1.0 -.8 -.6 -.4 -.2 0.0 +.2 +.4 +.6 +.8 +1.0
My Conversations
01152012 Jim-Mary
01202012 Jim-Joseph
02102012 Jim-Roger
02252012 Jim-Amy
03132012 Jim-Bill
03202012 Jim-George
03252012 Jim-Sam
02152012 Jim-Mary
02202012 Jim-Joseph
03102012 Jim-Roger
04252012 Jim-Amy
2004

Fig. 20

Fig. 21

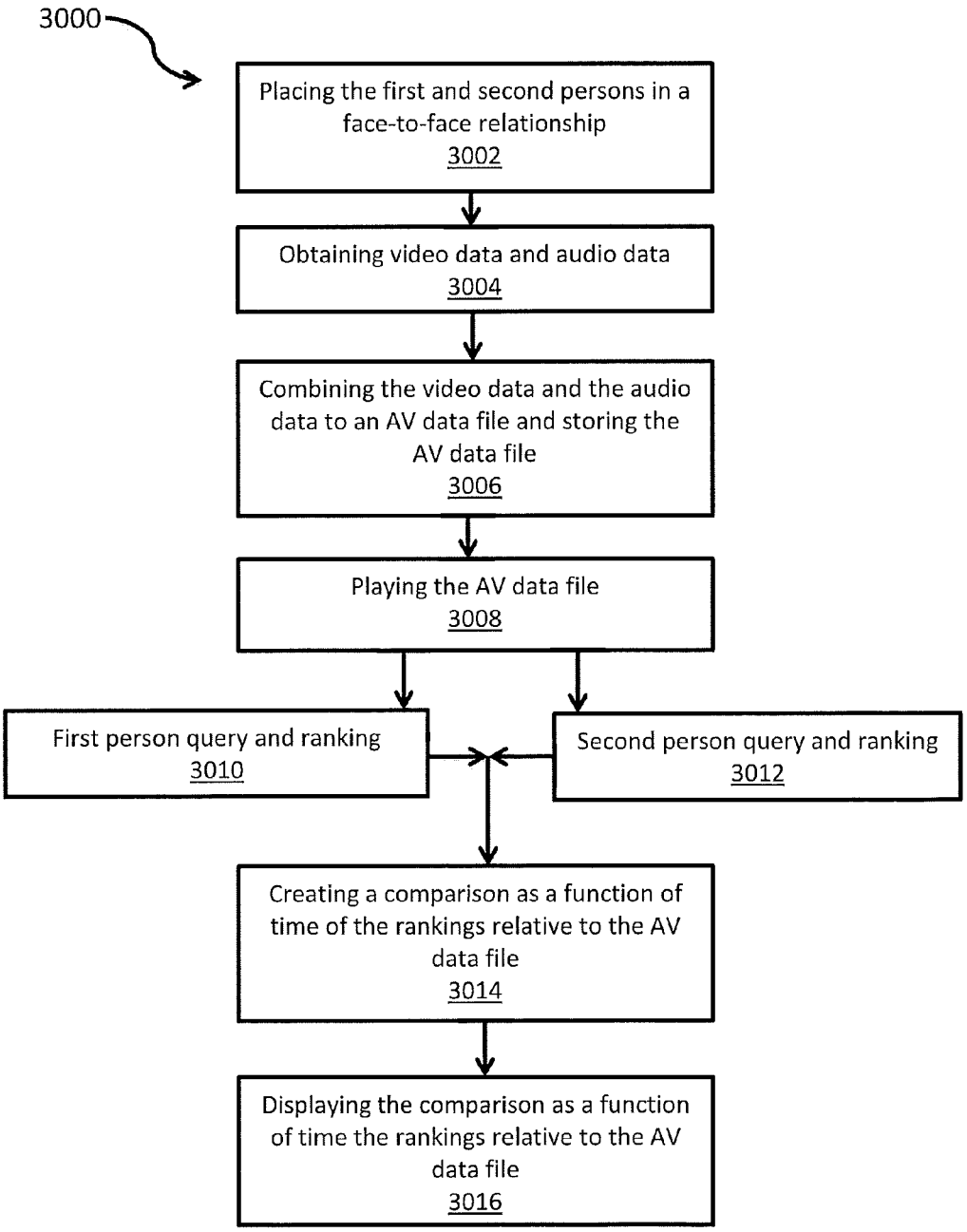

3000
Placing the first and second persons in a face-to-face relationship
3002
Obtaining video data and audio data
3004
Combining the video data and the audio data to an AV data file and storing the AV data file
3006
Playing the AV data file
3008
First person query and ranking
3010
Second person query and ranking
3012
Creating a comparison as a function of time of the rankings relative to the AV data file
3014
Displaying the comparison as a function of time the rankings relative to the AV data file
3016

Fig. 22

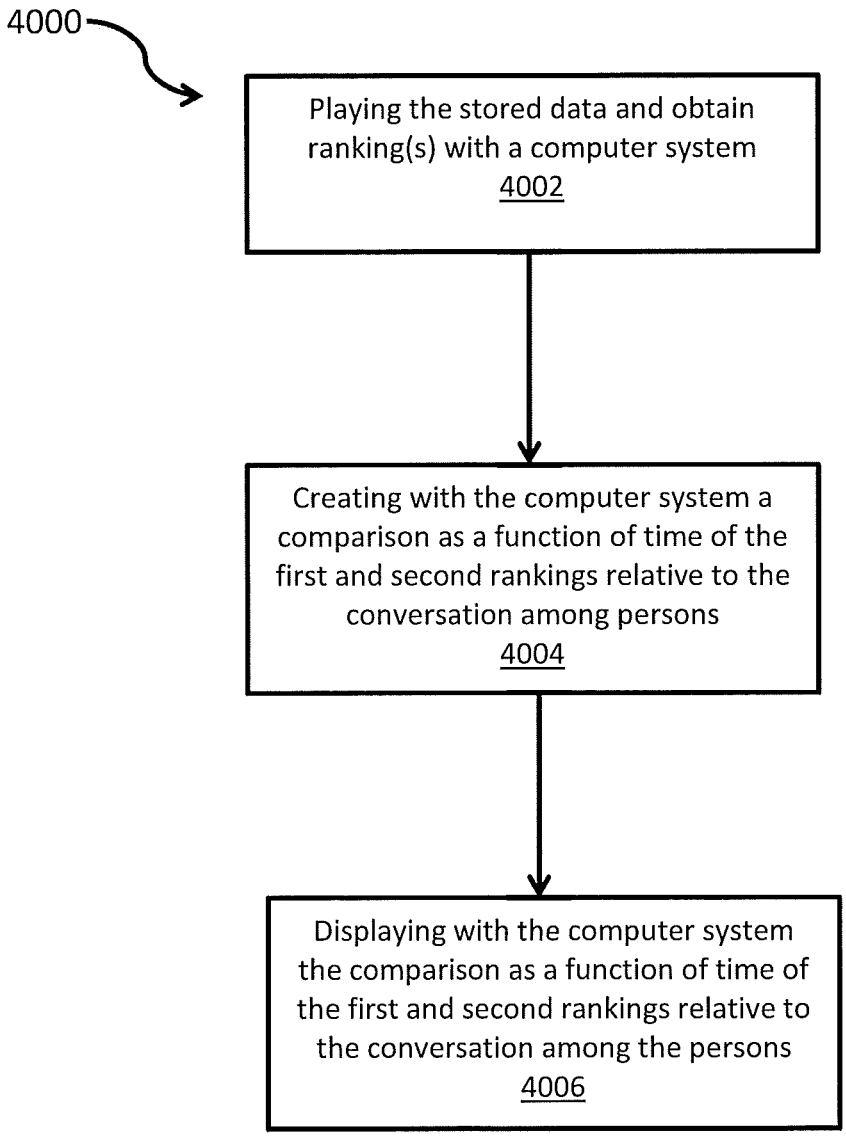

4000
Playing the stored data and obtain ranking(s) with a computer system
4002
Creating with the computer system a comparison as a function of time of the first and second rankings relative to the conversation among persons
4004
Displaying with the computer system the comparison as a function of time of the first and second rankings relative to the conversation among the persons
4006

Fig. 23

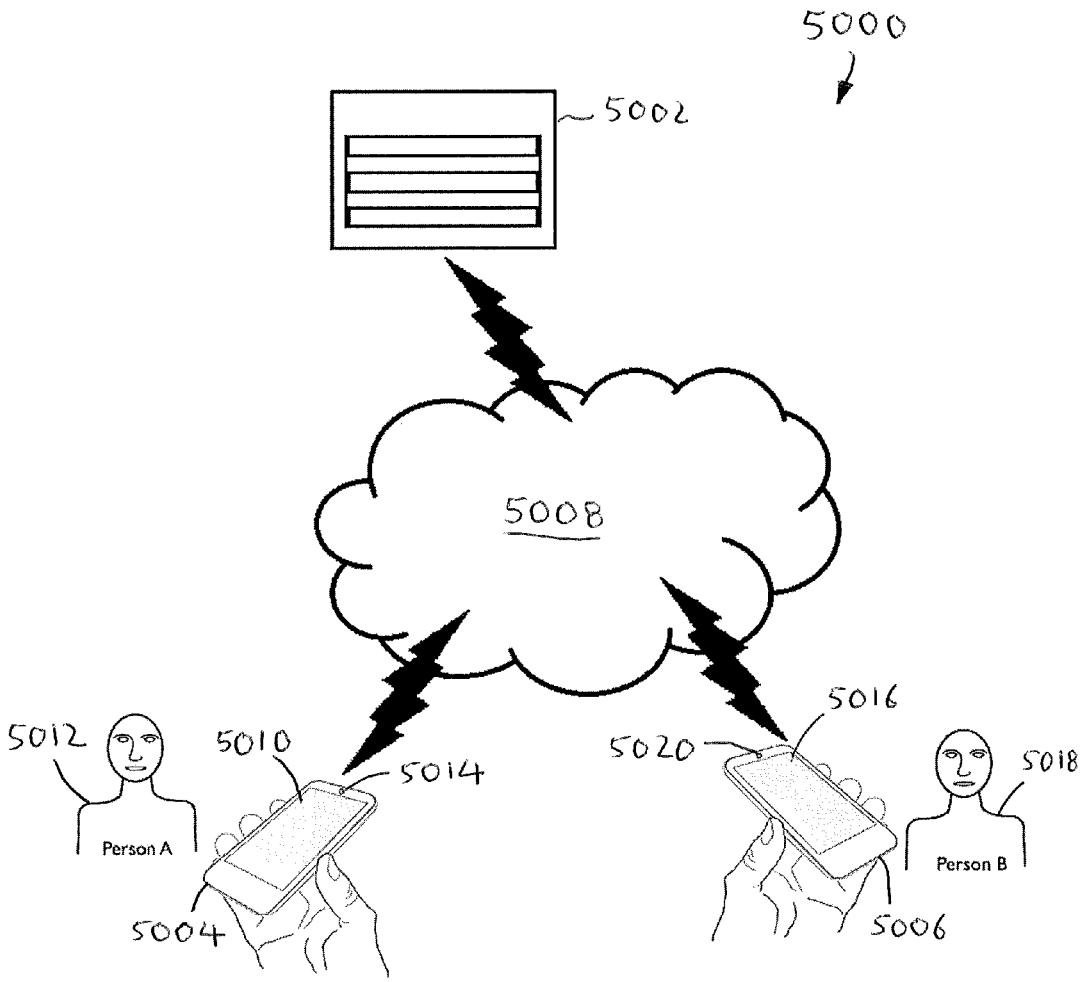

5000
5002
5008
5012
5010
5014
5016
5020
5018
Person A
Person B
5004
5006

Fig. 24

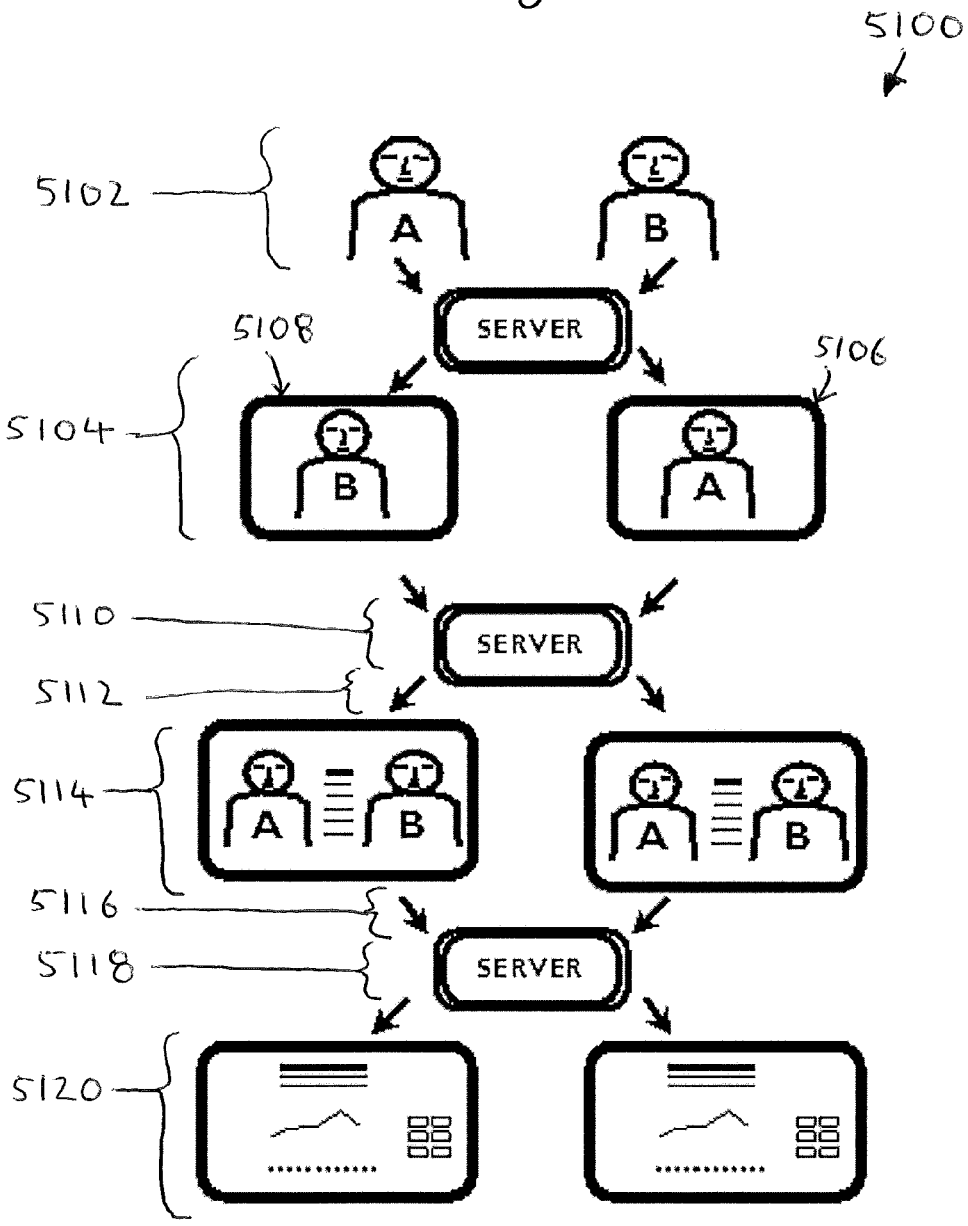

5100
5102
A
B
SERVER
5108
5106
5104
B
A
5110
SERVER
5112
5114
A
B
A
B
5116
5118
SERVER
5120

Fig. 25

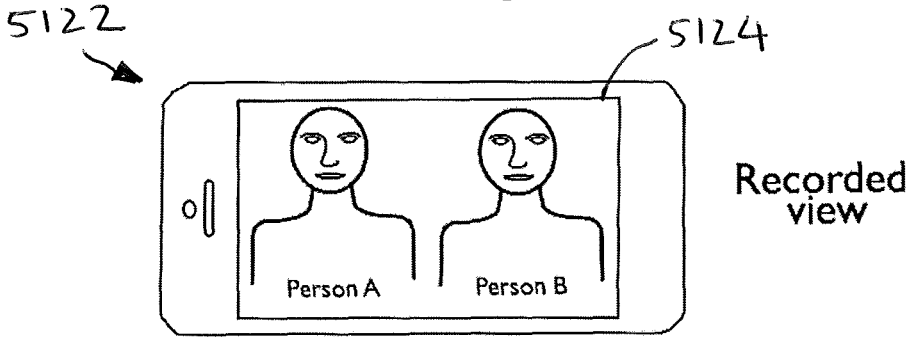


Fig. 26A

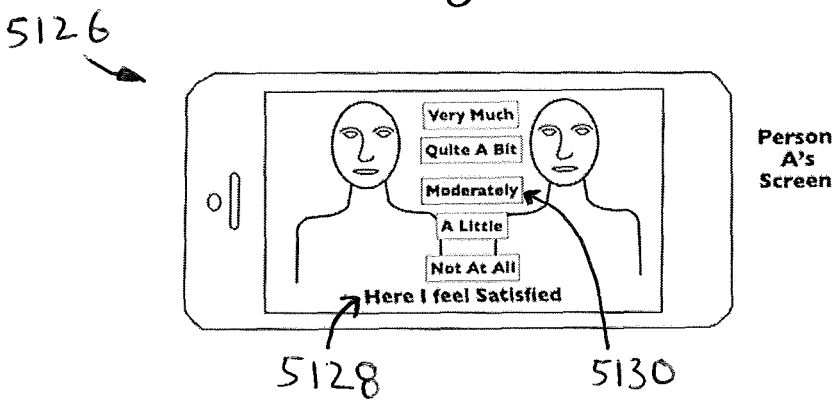


Fig. 26B

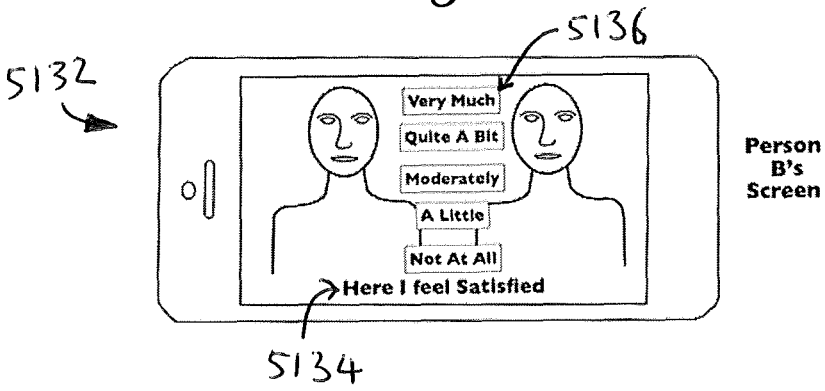


Fig. 27

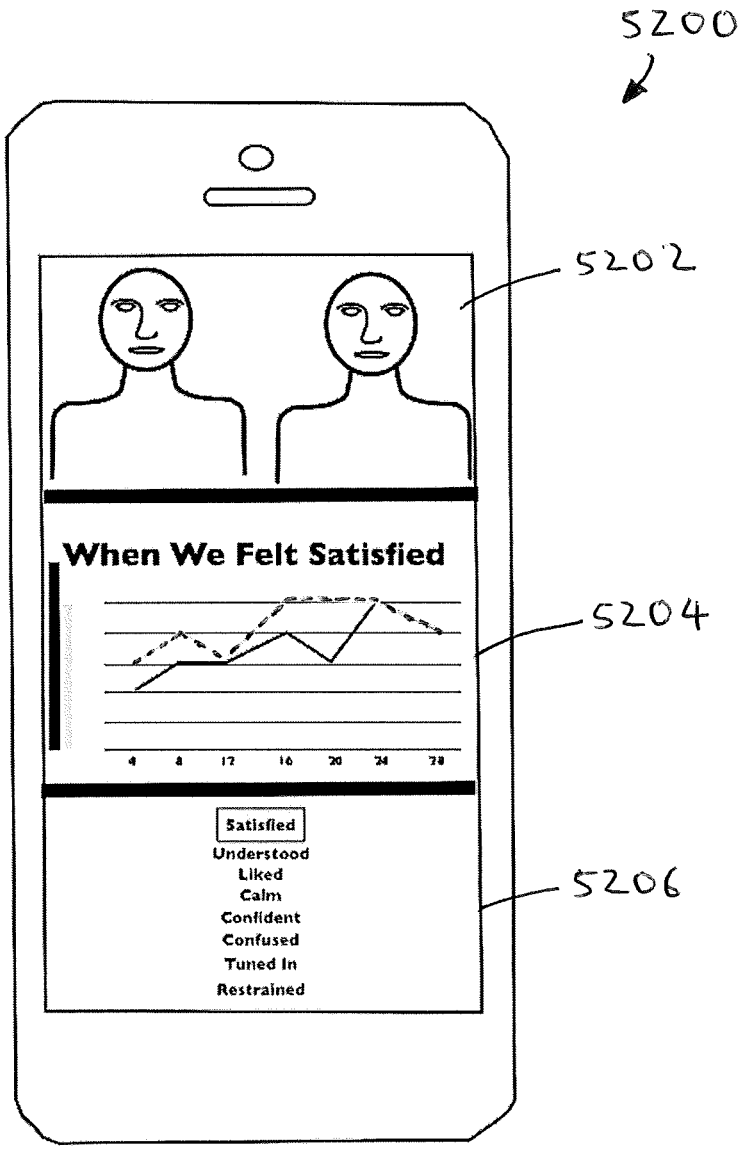

5200
5202
When We Felt Satisfied
5204
4
8
12
16
20
24
28
Satisfied
Understood
Liked
Calm
Confident
Confused
Tuned In
Restrained
5206

Fig. 28

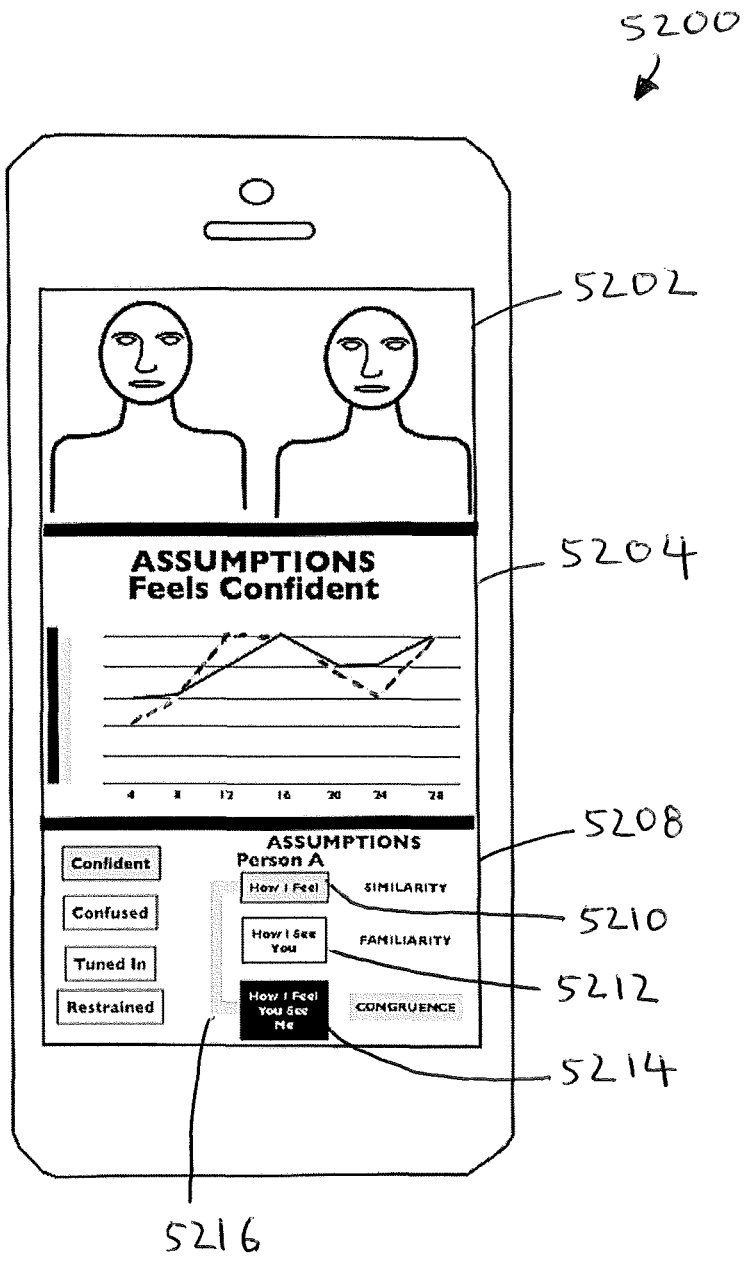

5200
5202
5204
ASSUMPTIONS
Feels Confident
4
8
12
16
20
24
28
5208
ASSUMPTIONS
Person A
Confident
Confused
Tuned In
Restrained
How I Feel
How I See You
How I Feel You See Me
SIMILARITY
FAMILIARITY
CONGRUENCE
5210
5212
5214
5216

Fig. 29

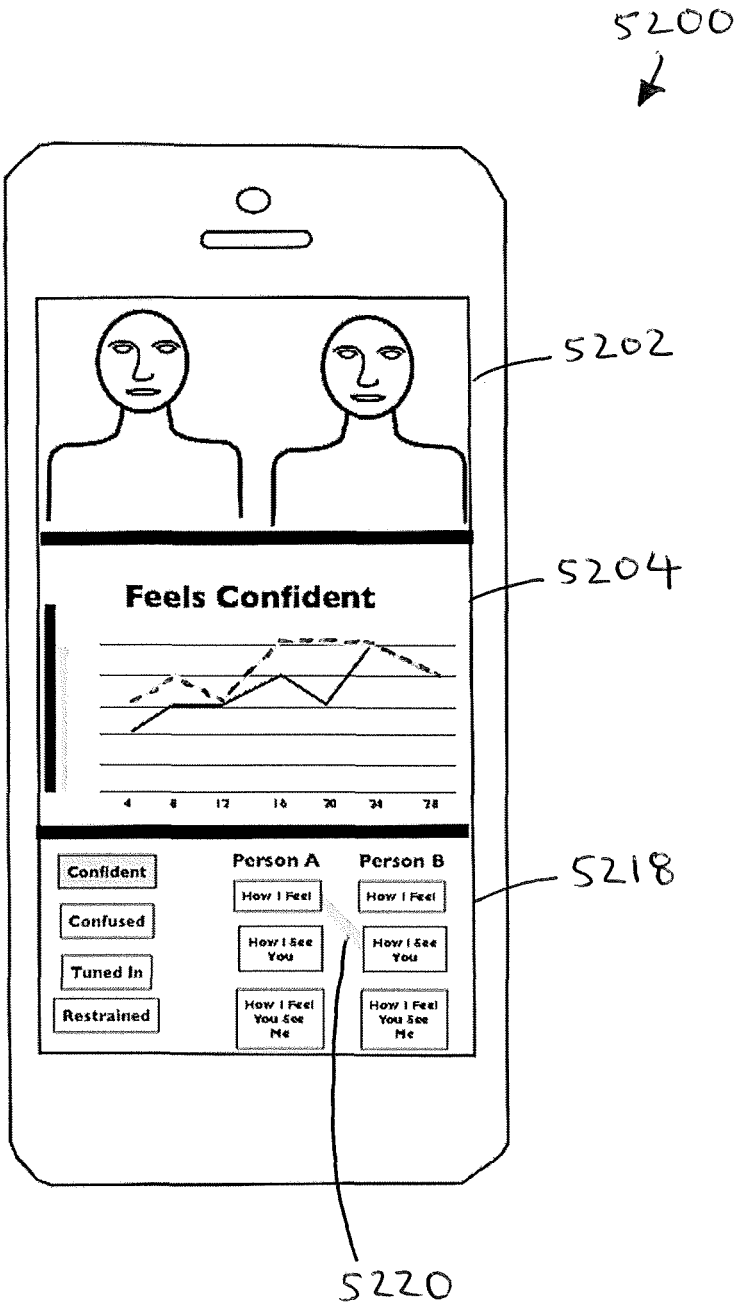

5200
5202
5204
Feels Confident
4
8
12
16
20
24
28
5218
Confident
Confused
Tuned In
Restrained
Person A
Person B
How I Feel
How I See You
How I Feel You See Me
How I Feel
How I See You
How I Feel You See Me
5220

Fig. 30

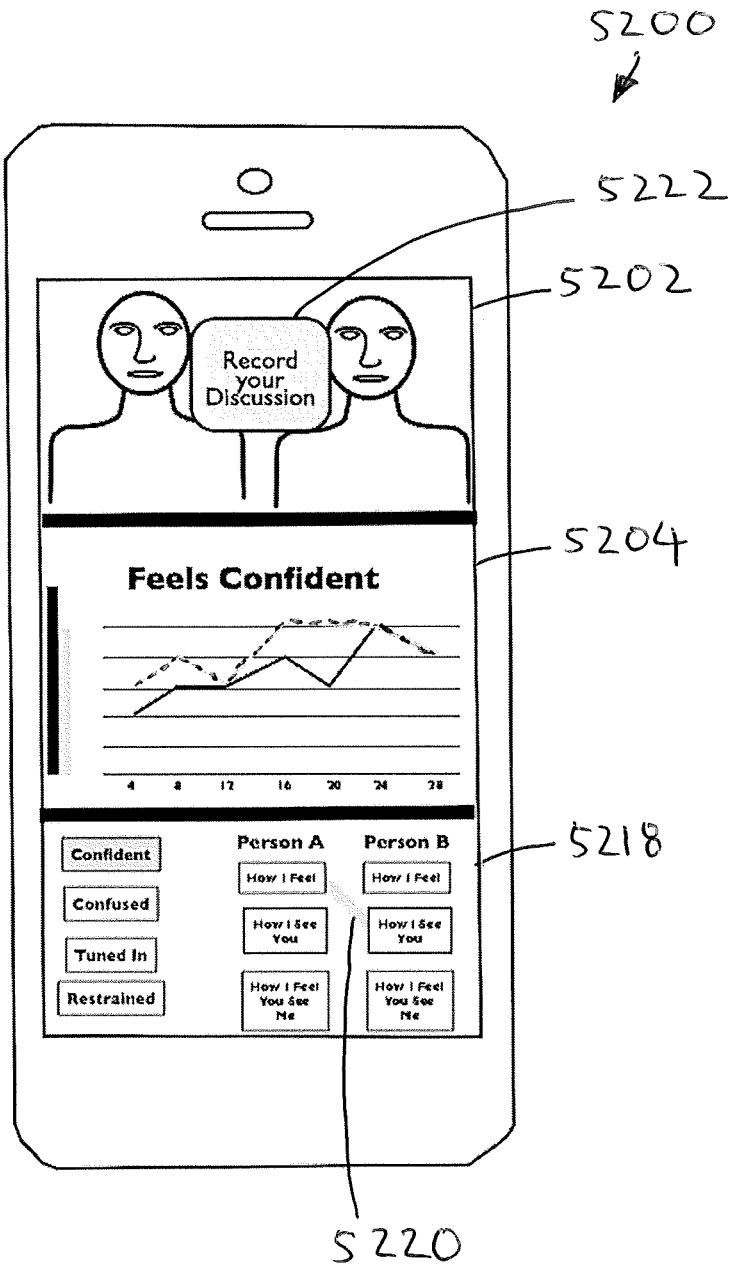
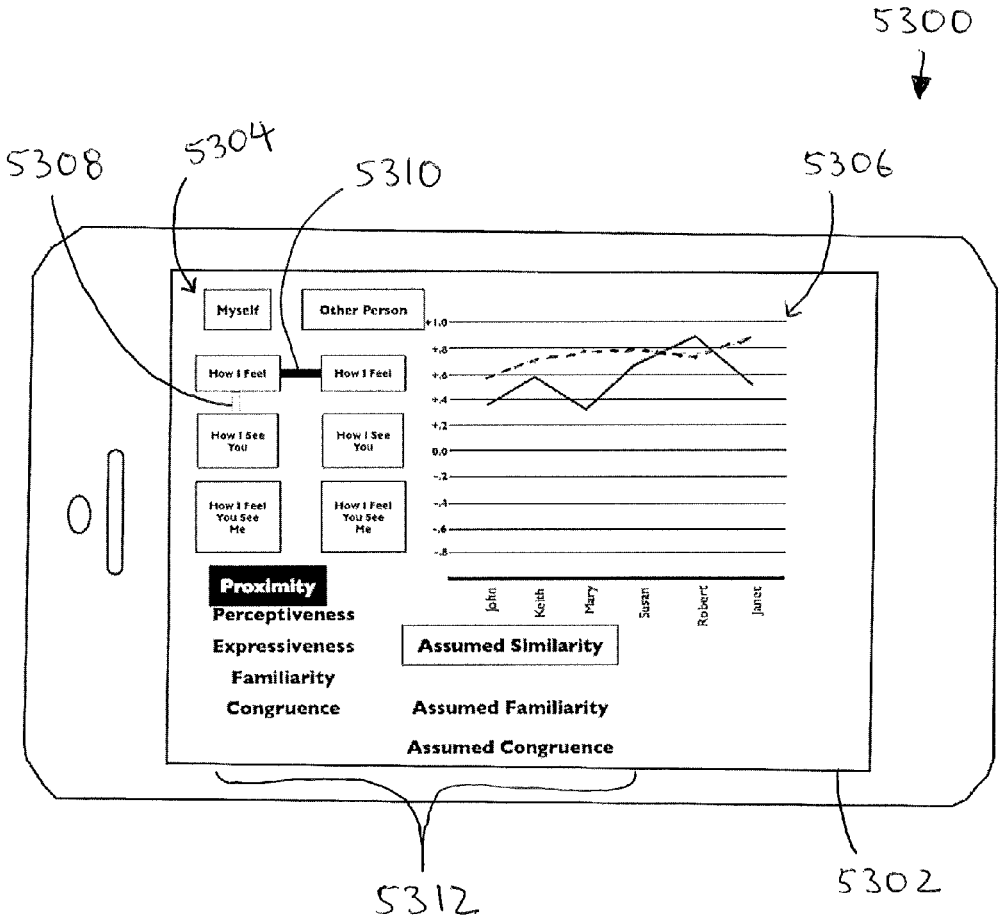

5200
5222
5202
Record your Discussion
5204
Feels Confident
4
8
12
16
20
24
28
5218
Confident
Confused
Tuned In
Restrained
Person A
Person B
How I Feel
How I See You
How I Feel You See Me
How I Feel
How I See You
How I Feel You See Me
5220

Fig. 31


5300
5308
5304
5310
5306
Myself
Other Person
How I Feel
How I Feel
How I See You
How I See You
How I Feel You See Me
How I Feel You See Me
+1.0
+.8
+.6
+.4
+.2
0.0
-.2
-.4
-.6
-.8
John
Keith
Mary
Susan
Robert
Janet
Proximity
Perceptiveness
Expressiveness
Familiarity
Congruence
Assumed Similarity
Assumed Familiarity
Assumed Congruence
5312
5302

MOBILE DEVICE AND SYSTEM FOR RECORDING, REVIEWING, AND ANALYZING HUMAN RELATIONSHIP

PRIORITY INFORMATION

This application claims the benefit of priority of U.S. Provisional Patent Application No. 61/480,555 filed Apr. 29, 2011 and entitled "SYSTEM, DEVICE, AND METHOD FOR RECORDING, REVIEWING, AND ANALYZING FACE-TO-FACE HUMAN INTERACTION," which is herein incorporated by reference in its entirety.

This application is a continuation-in-part of U.S. patent application Ser. No. 13/459,381 filed Apr. 30, 2012 and entitled "LEARNING TOOL AND METHOD OF RECORDING, REVIEWING, AND ANALYZING FACE-TO-FACE HUMAN INTERACTION," which is herein incorporated by reference in its entirety.

FIELD

This description relates generally to a computer implemented method, system, and device for face-to-face human interaction and analysis of the interaction.

BACKGROUND

Conventional face-to-face interaction is an interaction between two or more human beings who are physically close enough to each other so as to permit some form of mutual perceptual contact and reciprocal behavioral exchange. Such interactions are immediate and there is no barrier between the interacting parties. There is immediacy of time and proximity of space, which permits mutuality in perception and reciprocity in behaviors of both parties. Face-to-face interaction is an important phenomenon to human life because it is a conduit through which individuals influence each other in their daily lives. Face-to-face interactions are the primary experiences that form the foundation of human life.

In contrast to the conventional face-to-face interaction, conventional messaging interaction (e.g., letter writing with paper letters mailed through a postal service), is an example of an interaction where there is both a time and space barrier between participants. There are fundamental differences between the conventional face-to-face interaction and the conventional messaging interaction. The time and space barriers slow down the interaction process and the interaction proceeds in a step-wise process. For example, a message is sent from a sender to a responder, and the responder does not respond to the message until after the message has been received by the responder. The time delay between sender and responder allows the responder time to reflect on his/her response to the message. Because of the separation in time and space, the sender of a message cannot immediately monitor the impact of the message on the receiver. This type of conventional interaction can be slow and cumbersome.

The conventional messaging interaction has dominated human relationships throughout human history, and the media employed (letters, books, accounting ledgers, and documents of all kinds) generate valuable historical records. Such records not only define the relationship between parties but also how the relationship evolved. A good example of this is a correspondence between two people who exchange messages, such as letters, for a length of time. The reactions to each other's viewpoints about different issues can be examined in detail through the analysis of the written documentation in which they exchanged viewpoints. Similar time delay

barriers exist when using modern technology, such as, for example, e-mail, instant messaging, texting, blogging, social network posting and responding to the posting.

BRIEF SUMMARY

Face-to-face interactions are considered to be the primary arena where people learn about each other and themselves. Learning, like face-to-face interaction, is central to human life. Learning discussed in this disclosure requires effort and observation in order for learning to actually occur. Observation is essential for learning, and the significance of the method, system, and device described herein is that it is a true learning tool. A personal relationship learning tool allows participants to become co-investigators of their relationship. Most people have been socially conditioned to fear relationship feedback, having received feedback most often when something went wrong so that feedback is usually experienced as critical, uninvited, and presented by some authority. For most people, then, feedback is anticipated to be adverse, something to be avoided at all costs, unless absolutely necessary.

The device and system described herein provide modes of human interaction mediated by technology, extending the conventional understanding of face-to-face interaction. An example includes a mobile device having a processor connected to a camera component and a network interface, wherein the processor can communicate via a network (e.g., WiFi, cellular, internet, etc.) to a computer server (e.g., a remote computer server). The computer server communicates with another mobile device (also having a camera component and a network interface), wherein the computer server combines the data exchanged between the two mobile devices and stores the combined data during a face-to-face communication between users of the two mobile devices. That is, the computer server receives the two audio-video data of the communication between the two users via the two mobile devices, combines the two audio-video data as a single combined audio-video data file, and then stores the combined audio-video data file in a non-transitory computer-readable memory of the computer server. At a later time, one or both of the mobile devices can access the computer server via the respective mobile devices and review the combined audio-video data file. That is, the computer server can communicate the combined audio-video data file to one or both of the mobile devices when the computer server receives a request for the combined audio-video data file from one or both of the mobile devices.

The combined audio-video data can be a social event because the recording process itself is a catalyst for interpersonal processes inherent in all human relationships. Accordingly, the system that includes one or more mobile devices and the computer server is an embodiment of the learning tool. The extension of the face-to-face interaction emphasizes the core definition of the conventional face-to-face interaction, i.e. real-time mutuality and reciprocity. Even when only audio information is exchanged during the interaction, the resulting conversation could be considered to be a face-to-face interaction, because the conversation takes place in real time where both parties can speak and listen.

The computer server can provide a social networking or other relationship interface via which the face-to-face communication can be accessed via the mobile device(s). The combined audio-video data, which is a recording of the face-to-face communication between two persons, can be accessed, searched for, viewed, etc. via, for example, the

social networking interface provided via the computer server or provided by a user interface (e.g., App) displayed on the mobile device.

Many internet sites, such as social networking sites (which allow communication via postings, likes, text messages, emoticons, etc.) and relationship matching services (e.g., dating sites, which include still and/or motion pictures of faces) are not interactive at the level of face-to-face interaction because the person being observed is not also observing the observer in real time. This distinction is relevant here because the product described here is applicable to all forms of human face-to-face interaction, regardless of the physical location of the participants. Physical proximity is not considered essential to the definition of face-to-face interaction as used herein, but real-time mutuality and reciprocity is. Where the participants are remotely located from each other but having an interaction with real-time immediacy is included in the meaning of the face-to-face interaction as used herein.

Face-to-face interaction requires at least two participants. Face-to-face interaction can include more than two participants. The embodiments of the process, system, and device disclosed here in are designed to be applicable to all forms of face-to-face interaction, regardless of the number of participants and/or regardless of their physical proximity. For easier understanding, the embodiments herein describe two-person or dyadic application. Applying the principles described to a group face-to-face interaction is the same method and/or product extended to accommodate more parties.

An embodiment of system includes a computer server having a processor, a network interface, and a non-transitory computer-readable memory for storing one or more AV recording of a face-to-face interaction between at least two people. The system also includes at least two mobile devices. The first mobile device obtains video data of a substantially face-on first image of a first person and communicates the video data to the computer server. The first mobile device records an audio data of the first person and communicates the audio data to the computer server. The video data and audio data can be combined at the first mobile device, and communicated to the computer server as a combined audio-video data file. The second mobile device obtains at least another video data of a substantially face-on second image of a second person, and communicates that video data to the computer server. The second mobile device records another audio data of the second person and communicates that audio data to the computer server. The video data and audio data can be combined at the second mobile device, and communicated to the computer server as a combined audio-video data file.

The computer server can combine the two video data and the two audio data (or the two audio-video data) from the two mobile devices into a single combined audio-video (AV) data file, wherein the combined audio-video data file has an image of a substantially face-on first image of the first person and a substantially face-on second image of a second person, so that both of the faces of the first person and the second person are viewable. The computer server stores the combined audio-video data file in the non-transitory computer-readable memory. The computer server can provide searchable and indexed access to the combined audio-video data file, and also to other combined audio-video data files if they exist, from both of the mobile devices. For example, both of the mobile devices can access to view and listen to the combined audio-video data file at the same time. The combined audio-video data file is displayed on the mobile device with the two face-on images of the first person and the second person being side by side.

Each of the mobile devices is configured to aid in analyzing the combined audio-video data file by playing the combined audio-video data file. During the playing of the combined audio-video data file by one of the mobile devices, the mobile device provides, at a moment of the combined audio-video data file, a first query statement (e.g., as a part of a first series of queries) to the first person. During the playing of the combined audio-video data file by another mobile device, the another mobile device provides, at a moment of the combined audio-video data file, a second query statement (e.g., as a part of a second series of queries) to the second person. Thus, different query statements can be displayed on the respective mobile devices. Thus, what can be considered to be a first ranking device is the first mobile device in communication with the computer server, which allows the first person to provide a first rank to the first query statement. Further, what can be considered to be a second ranking device is the second mobile device in communication with the computer server, which allows the second person to provide a second rank to the second query statement.

The computer server receives the first rank and the second rank, and stores the first rank and the second rank as a comparative rank data as a function of time of the combined audio-video data file in the non-transitory computer-readable memory. The computer server can communicate the comparative rank data to one or more of the mobile devices, and the one or more mobile devices can display the comparative rank data as the function of time of the combined audio-video data file. This allows displaying of periods of similarities and differences of the first rank and the second rank along the time axis of the combined audio-video data file (i.e., during the face-to-face interaction between the first and second persons), so that the periods of similarities and differences can be observed and discussed by the first and second persons, becoming points of learning to first and second persons.

In another embodiment, the mobile device includes an interface, displayed on a display device of the mobile device. The interface includes an image that shows at least a portion of the substantially face-on first image and at least a portion of the substantially face-on second image, and a graph showing a comparison of the comparative rank data as a function of time, a dynamic synchronization of the image with a slider control which can be moved along an axis of a time graph, wherein the comparison of the comparative rank data and the third image are displayed synchronized together.

In another embodiment, the review interface includes a bar comparison of averages of the comparison of the comparative rank data for the time graph.

Another embodiment includes a ranking system displayed on the mobile device, which allows either the first person or the second person to independently provide a rank to a query statement displayed on the mobile device with respect to the combined audio-video data file being played on the display screen of the mobile device. The review interface displays the rank as a function of time of the combined audio-video data file, which shows periods of similarities and differences of the rank, wherein the periods of similarities and differences to be observed and discussed becoming points of learning to the first or the second persons. The embodiment further includes a camera and/or microphone for obtaining a video and/or audio data of the first or the second person during the displaying of the rank as the function of time of the combined audio-video data file.

In another embodiment, the query statement includes a request to assume a viewpoint. In another embodiment, the viewpoint can be one of a self-view, an other-view, and a social view. In another embodiment, the query statement

includes a statement to consider when creating the first and second rankings. In another embodiment, the query statement includes a statement to consider when creating the first and second rankings. In another embodiment, the query statement includes a viewpoint which could be one of a self-view, an other view, and a social view, and the query statement also includes a statement with respect to the viewpoint, said method further comprises changing the query statement a plurality of times during the playing at least the portion of the combined audio-video data file.

In another embodiment, a non-transitory computer-readable storage memory stores a set of instructions which when executed by a computer system implement a method for analyzing data gathered by a mobile device. The mobile device includes a data gathering system that gathers data about persons during a conversation among them and the computer system connected to the data gathering system for receiving the data and storing.

The mobile device can display, on a display screen of the mobile device, a ranking system which allows at least some of the persons to independently rank first and second query statements with respect to the conversation. The embodiment of the method comprises playing the stored data with the mobile device to allow one of the persons to rank a first query statement with the ranking system to obtain a first ranking, while a second mobile device allows another of the persons to rank a second query statement with the ranking system to obtain a second ranking. The computer server receives both of the first ranking and the second ranking and creates a comparison as a function of time of the first and second rankings relative to the conversation among the persons (e.g., the combined audio-video data), and displays on display(s) of one or both of the mobile devices the comparison as a function of time of the first and second rankings relative to the conversation among the persons (e.g., the combined audio-video data). Thus, periods of similarities and differences between the first and second rankings can be observed and discussed, which become points of learning.

In another embodiment, the computer server includes a non-transitory computer-readable memory which stores a plurality of the combined audio-video data files and associated ranking data file(s). The computer server is configured to be accessible by one or more mobile devices via a network, and provide to the mobile devices an indexed listing of the combined audio-video data files and the associated ranking data file(s). When one or more of the mobile devices sends a request to the computer server for a particular one of the combined audio-video data files and/or the associated ranking data file(s), the computer server transmits the requested data files to the mobile device from which the data request has been made. The mobile device can then display on its display device, the combined audio-video data and the associated ranking data from the received files. During the displaying of the combined audio-video data and the associated ranking data on the mobile device, the mobile device can be used to add additional comments (e.g., via audio using a microphone of the mobile device) regarding the files, which is communicated to the computer server via the network. The computer server receives the comments and stores the comments as additional data (i.e. comment data) that are associated with the respective combined audio-video data file and the associated ranking data file(s). The comment data can include time data so that the comment data is associated with a particular time point(s) of the combined audio-video data, so that when the combined audio-video data is viewed, the comment data can be played at particular moments in time of the combined audio-video data that the comment is associated with. The comments can be observed and discussed, by the person who made the comment or by others (e.g., the other participant in the conversation of the combined audio-video data file) which become points of learning.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** shows an embodiment of a learning tool.

FIG. **2** shows an embodiment of a camera system.

FIG. **3** shows example positions of participants and a camera system.

FIG. **4** shows another embodiment of a camera system.

FIG. **5** shows an embodiment of face-on images.

FIG. **6** shows an embodiment of a combined image.

FIG. **7** shows an embodiment of a user interface.

FIG. **8** shows an embodiment of a user interface.

FIG. **9**A shows an embodiment of a user interface.

FIG. **9**B shows another embodiment of a user interface.

FIG. **10** shows an embodiment of a user interface.

FIG. **11** shows embodiments of query statements and/or responses for the user interface.

FIG. **12** shows an example of a comparison of query statements between two people in time.

FIG. **13** shows an example of query statement structure.

FIG. **14** shows an example of relational assumptions of the three viewpoints.

FIG. **15** shows an example of relational assumptions of the three viewpoints between two people.

FIG. **16** shows an example of a comparison of relational assumptions between two people.

FIG. **17** shows an example of a graphic display of a time sequence data analysis.

FIG. **18** shows an example of a graphic display of a time sequence data analysis.

FIG. **19** shows an example of a graphic display of a time sequence data analysis.

FIG. **20** shows an example of a graphic display of data analysis across several face-to-face interactions.

FIG. **21** illustrates a flowchart of a method according to an embodiment.

FIG. **22** illustrates a flowchart of a method according to an embodiment.

FIG. **23** shows an embodiment of a learning tool system.

FIG. **24** shows an example flow chart of a method for using the learning tool system shown in FIG. **23**.

FIG. **25** shows an example of a mobile device displaying a combined audio-video data file.

FIG. **26**A shows an example of a first mobile device displaying a combined audio-video data file and a user interface.

FIG. **26**B shows an example of a second mobile device displaying a combined audio-video data file and a user interface.

FIG. **27** shows a mobile device displaying an embodiment of a user interface.

FIG. **28** shows a mobile device displaying an embodiment of a user interface.

FIG. **29** shows a mobile device displaying an embodiment of a user interface.

FIG. **30** shows a mobile device displaying an embodiment of a user interface.

FIG. **31** shows a mobile device displaying an embodiment of a user interface.

DETAILED DESCRIPTION

FIG. **1** shows a personal relationship learning tool **100** including a camera system **102** in communication with a

computer system **104**. The camera system **102** includes at least one camera **106** having an aperture **108**. The camera system **102** is configured to send an image data from the camera system **102** to the computer system **104**. The camera system **102** is configured to obtain a video data of a substantially face-on first image of the first person and a substantially face-on second image of the second person during a face-to-face conversation between the first and second persons. The computer system **104** includes a display device **110** for displaying an interface for one or more users to interact with the learning tool **100**. The interface displayed on the display device **110** may be one or more of the interfaces described more in detail below, and shown in FIGS. **7-11** and **14-19**. The computer system **104** further includes a non-transitory computer-readable memory device **112** for storing one or more data files. The learning tool **100** includes an audio recording system **114** to obtain audio data of the face-to-face conversation audio of the first and second persons during the face-to-face conversation between the first and second persons. The audio recording system includes a microphone for recording audio. The computer system **104** receives the video data and the audio data, combines the video data and the audio data to form an audio-video data file, and stores the audio-video data file. The computer system is configured to aid in analyzing the audio-video data file by playing the audio-video data file and displaying the video of the audio-video data file on the display device **110**. During the playing of the video of the audio-video data file, the computer system **104** can display, at predetermined or random moment during the playtime of the audio-video data file, one or more query statements via the interface shown on the display device **110**. The learning tool **100** includes one or more ranking devices **116**, **118**. FIG. **1** shows a first ranking device **116** that is connected to the computer system **104**, which allows the first person to provide a first rank to a first query statement displayed via the interface shown on the display device **110**. A second ranking device **118** is connected to the computer system **104**, which allows the second person, independent of the first person, to provide a second rank to a second query statement displayed via the interface shown on the display device **110**. The computer system **104** is configured to receive and receives the first rank and the second rank. The computer system **104** then stores the first rank and the second rank as a comparative rank data to the non-transitory computer-readable memory device **112**. The computer system **104** displays on the display device **110** via the interface, a comparative rank data as a function of time of the audio-video data file, which shows periods of similarities and differences of the first rank and the second rank, wherein the periods of similarities and differences can be observed and discussed, thereby becoming points of learning to the people who were the participants of the recorded face-to-face interaction.

The learning tool **100** can be used for recording primarily the sound of the face-to-face interaction. Recording the sound from the face-to-face interaction provides some data for review and analysis. A function of the audio recording is to act as a stimulus for at least one participant's recall of the face-to-face interaction during the recall process. Accordingly, the recall process can include using the audio only recorded data. A feature of the recall process using only the audio recording is that whatever is recorded can prompt the participant to recall and also serves as a reference point in real time so that query statements can be presented in a structured manner so that the participants can respond at the same points in real time. Thus, the method disclosed herein could be applied to a recorded telephone conversation, Voice Over Internet Protocol (VOIP) conversation, etc. The method includes recording the conversation of at least two participants who may be in separate physical locations. A VOIP implementation can require that each participant use a computer system configured for VOIP and a memory storage memory onto which the recorded conversation is stored.

In another embodiment, the non-transitory computer-readable memory device **112** is a non-transitory computer-readable storage memory which stores a set of instructions which when executed by the computer system **104** implement a method for analyzing data gathered by the personal relationship learning tool **100**. The tool **100** includes a data gathering system, which includes the camera system **102** and the audio recording system **114**, that gathers data about persons during a conversation among them. The computer system **104** is connected to the data gathering system **102**, **114** for receiving the data and storing the data. The tool **100** further includes a ranking system **116**, **118**, which allows at least some of the persons to independently rank first and second query statements with respect to the conversation. The embodiment of the method comprises playing the stored data with the computer system **104** to allow one of the persons to rank a first query statement with the ranking system **116** to obtain a first ranking and to allow another of the persons to rank a second query statement with the ranking system **118** to obtain a second ranking, creating with the computer system **104** a comparison as a function of time of the first and second rankings relative to the conversation among the persons, and displaying with the computer system **104** the comparison as a function of time of the first and second rankings relative to the conversation among the persons, wherein periods of similarities and differences between the first and second rankings can be observed and discussed, which then become points of learning.

In another embodiment, the non-transitory computer-readable memory device **112** is a non-transitory computer-readable storage memory which comprises a stored audio-video data file and a stored associated ranking data file, wherein the stored audio-video data file and the stored associated ranking data file have been gathered about persons during a conversation among them by using the learning tool **100** which includes the computer system **104** connected to a data gathering system **116**, **118** for receiving audio-video data and storing the audio-video data as the stored audio-video data file by the computer system **104**. The learning tool **100** further includes the ranking system **116**, **118** which allows at least some of the persons to independently rank first and second query statements with respect to the conversation which is stored as the stored associated ranking data file by the computer system **104**.

FIG. **2** shows an embodiment of a camera system **200** configured with a communication component **202** configured for sending image data to a computer system **104**. It can be preferable for the camera system **200** to be capable of high quality digital recording at various lighting conditions. The camera system **200** includes a prism **204** configured in front of an aperture **206** of a camera **208**. The prism **204** has a first surface **210**, a second surface **212**, and an aperture surface **214**. The aperture surface **214** faces the aperture **206**. A first image that is received at the first surface **210** of the prism **204** is refracted towards the aperture **206** and passes through the aperture surface **214**. A second image received at the second surface **212** is refracted towards the aperture **206** and passes through the aperture surface **214**. Thus the prism **204** can combine the first and second images such that the aperture **206** receives the combined image. The combined image is sent to a computer system **104** via the communication component **202**.

The camera system **200** can also include the audio system, such as a microphone **216** for capturing the audio data. The audio data is combined with the combined video data as an audio-video data and sent to the computer system via the communication component **202**. Alternatively, the audio data is sent as a separate data from the video data, and both the audio data and the video data are sent to the computer system via the communication component **202** as separate data. The computer system then can combine the audio data and the video data for creating the audio-video data. The camera system **200** can include a stand **218** and a base **220**. The stand **218** can be a telescoping tube that is configured for changing the height of the camera system **200**.

The prism **204** can be an optical quality prism. The prism **204** has internal angles appropriate for capturing images of participants and for refracting the images to form a combined image towards the aperture surface **214** for sending the combined image to the aperture **206** of the camera **208**. An embodiment of the prism **204** is an equilateral prism having 60° for each internal angle of the prism **204**. For the equilateral prism, the camera system **200** should be positioned midway between the participants at their eye level about 12 inches away from the axis of interaction. The participants are seated, about 2-4 feet apart, facing each other. As participants look directly at each other, each should be able to see the camera system **200** on the periphery of their field of view. The camera system **200** may be connected to the computer system through the USB port. The camera system **200** is configured to be adjusted for height and for tilt to accommodate participants who might be of different heights. The prism **204** optically reverses the images of each person, left to right, just as it would be if they were seeing themselves in a mirror.

FIG. **3** show an example of positioning **300** for the camera system **200** and two participants **302**, **304**. The camera system **200** is placed at position A, two participants **302**, **304** at positions B and C, respectively, for engaging in a social interaction, e.g., face-to-face interaction. The two participants **302**, **304** face each other along an axis of the interaction **306**. The camera system **200** placed at position A is not on the axis of the interaction **306** defined by first person's position B and second person's position C. However, the camera system **200** can capture substantially face-on images of the participants **302**, **304**, such that facial expressions of the participants **302**, **304**, such as, eye movement, and/or eye contact between the participants can be recorded. Such information replicates what was available in the face-to-face interaction and stimulates greater recall for the participants. The camera system **200** can be in plain view to both participants.

In another embodiment, the camera system can include at least two cameras, each of the cameras respectively provided to capture substantially face-on images of the participants. An example of such embodiment of the camera system may use a mobile computer system having a digital camera and a microphone. Each camera would record the face-on image of the participants. Then, the recorded video images are cropped, accomplished through a computer software and/or hardware within the mobile computer system and/or a remote computer system that receives the images from the cameras.

Once the face-to-face interaction is finished and the interaction is recorded to a non-transitory computer-readable memory, to a local storage and/or to a remote server's memory, the parties would then proceed to a Reviewing Stage. The Reviewing Stage includes playback of the recorded composite images and/or video for viewing by both parties.

FIG. **4** shows another embodiment of a camera system **400** having a first camera **402** and a second camera **404** connected to a stand **406** and a base **408**. The first camera **402** has a first aperture **410** for receiving a first image. The second camera **404** has a second aperture **412** for receiving a second image. The stand **406** is configured to be height adjustable by having a telescoping tube configuration. The first camera **402** has a first view angle, and the second camera **404** has a second view angle. The first camera **402** and the second camera **404** are pivotable and configurable up-and-down, and/or side-to-side. The first camera **402** sends the first image data to a computer system or a video mixer unit. The second camera **404** sends the second image data to the computer system or the video mixer unit. If the video mixer unit receives the first image data and the second image data, the video mixer unit combines at least a portion of the first image data and at least a portion of the second image data to generate a combined image data, and sends the combined image data to the computer system. If the computer system receives the first image data and the second image data, the computer system uses a software method to combine at least a portion of the first image data and at least a portion of the second image data to generate the combined image data. The camera system **400** having the two cameras **402**, **404** mounted together can be placed somewhere near the participants. The two cameras **402**, **404** can be positioned close to the axis of interaction so that they do not interfere with the sight line between the participants yet capture substantially face-on views of each person. For example, the camera system **400** can be positioned midway between the participants at their eye level about 12 inches away from the axis of interaction. The participants are seated, about 2-4 feet apart, facing each other. As participants look directly at each other, each should be able to see the camera system **400** in their field of view. In another configuration, the camera system is configured to combine signals from the cameras **402**, **404** into a single composite images and/or video, transmit the composite images and/or video to a computer system and/or remote server for storage to a non-transitory computer-readable memory. The composite image is stored to the non-transitory computer-readable memory as a digital file and edited so that, when played back, the playback video of the digital file shows each person similar to or as he/she was actually seen by the other person without the images being reversed or mirror images thereof.

FIG. **5** shows a first image **502** captured by the first camera and a second image **504** captured by the second camera of the camera system **400**. The images **502**, **504** shown are prior to the images being combined to generate a single composite image and/or video file, for example by a mixer unit, a computer system, and/or a remote server. The first image **502** captured by the first camera shows a substantially face-on image of a first person **506** and first image border area **508** that a mixer unit determines as the crop region for generating the single composite image and/or video file. The second image **504** captured by the second camera shows a substantially face-on image of a second person **510** and a second image border area **512** that a mixer unit determines as the crop region for generating the single composite image and/or video file.

FIG. **6** shows an embodiment of a video recording image **600** of two persons' **602**, **604** face-to-face interaction. The image **600** can be achieved by using the camera systems **200**, **400** described above. Note that both people **602**, **604** shown in the image **600** are substantially face-on, which means that they are recorded close to the angle from which each was viewed by the other person. Thus, during a video playback, the participants see the other as well as his or her facial image. The video recording image **600** may include frames and/or borders to dress up the image **600**, such as for example, an

interface having a border displayed over the image **600** between the two people **602**, **604**.

A single composite image combined from a plurality of images from a combination of the embodiments of the camera system with more than two people participating in a face-to-face interaction is also possible. Recording the interaction of more than two people is similar to recording two persons, i.e. along the interaction axis of the participants. The participants should remain stationary, either sitting in a circle or on both sides of a table. Two cameras can be positioned to shoot over the heads of the participants on each side, and the separate video signals can be combined in a video mixer to form a composite video image.

Examples of a computer system in accordance with the present invention include one or more of a desktop computer, laptop computer, a mobile device (e.g., a tablet, a mobile phone, mobile personal entertainment device, cloud computing device, etc.). An example mobile device can be, for example, an ebook, a tablet (e.g., iPod®, iPad®, etc.) a smart phone (e.g., Android® phone, iPhone®, etc.), etc. The mobile device includes a non-transitory computer-readable memory for storing computer instructions that store a computer product and/or a user interface instructions for recording, reviewing, and analyzing, which could be carried out on each unit separately or in conjunction with a server. The advantage of such instrumentation is its simplicity and flexibility, allowing it to be used in various settings. For example, the tablet device having a touch screen, the controls can be provided via software and displayed as a user interface. The mobile computer system can include a camera, a sound input, and a sound output. The mobile device can connect via a wireless network, such as WiFi, cellular, 3 G, 4 G, etc., to receive downloads of data and transmit data via the internet to a remote server. The mobile device can be configured to be fully operable without any connection to the internet or a network, providing security and capacity to protect privacy, which in some settings would be most critical. This means that the participants themselves have total control over all stages of the process and over any distribution of recordings and data. Examples of such an application include legal/forensic settings, chemical dependency and psychiatric treatment settings, military settings, and business settings requiring private collaborations.

A non-transitory computer-readable memory can provide a virtual computer system which converts almost any computer system into an operational instrument for the method described herein, by means of a flash drive containing all necessary software. For security, the flash drive could have its own security lock (such as the fingerprint of the user) in order to operate. When inserted into a computer system the flash drive downloads the computer instructions for the methods described herein, executes the computer instructions, and stores the recorded conversations and collected data. The advantage of this system is its flexibility without compromising security. However, it may be restricted in memory size and access to software updates.

The user interface can be a part of a social networking web interface and/or application. The video files are stored in a remote server, cataloged and readily reviewable by the parties who are the participants. The video file may be shared with others with permission from one or more of the participants. The video file may be shared with others when only all of the participants provide permission for sharing. The cataloged and stored video files at a remote server provides a secure recording of a face-to-face interaction. The system also provides for a participating and recording a face-to-face interaction when using a computer system that is publicly shared, such as those at a public library, workplace, and/or coffee shops. Further, because each file is a record of a particular interaction, the participants can readily review the face-to-face interaction again and again, and even append the file to continue the interaction from where the conversation ended. Thus, the system provides for a chain of face-to-face interactions to be stored, cataloged, and searchable for the convenience of the participants and/or reviewer. Further, the analysis stage that is performed by the system can provide valuable information about the relationship between the participants. In the modern social networking and social sharing age, such analysis can be extremely valuable and entertaining.

An embodiment of an interface is presented in detail in FIGS. **7**-**15** to illustrate how the review strategy and structure according the learning tool are implemented.

FIG. **7** shows an embodiment of a user interface **700** displayed on a display of a computer system. The user interface **700** shown is for implementing Stage 1, or the Recording Stage. A participant accesses his/her account by entering their identification information that is associated with the recorded data and/or user account. The user interface includes a drop-down menu **702** that presents choices for recording a new conversation, accessing a previously recorded video, or feedback analyses for a session, or exiting the system. The video display portion **704** shows an example video of two participants as it would appear when they are conversing, but it would not be present until the participants activate and/or set up the camera system. In this example, the interface **700** provides a border over the video image that divides the image such that each person is shown in what appears to be separate windows. The menu **702** has a preview button **706** which, when clicked, turns on the camera system so the participants can position themselves and the camera system suitably so both of the participants will always be on camera during the recording. The menu **702** has a capture button **708** which, when clicked, starts the recording process. The recording video continues to be displayed on the screen, and the participants can tilt the computer display downwards so they are not distracted by it. First time participants may not want to have the video recording screen visible as they converse. Persons who have had little or no experience with being video recorded often report feeling self-conscious, especially if their previous experiences have been unpleasant. However, once they become engaged in their conversation, participants typically report they ignore recording apparatus and video screen. The menu **702** includes a stop button **710** which, when clicked, stops the recording process and moves the participants on to Stage 2 and changes the interface to the interface shown in FIG. **8** (described in detail below). The length of the conversation is usually determined by the participants themselves, but it could be preset by the participants or an administrator who agreed on a specific time limit before their conversation. One determining factor for the length of the conversation is the time necessary to view it and receive feedback analyses of their results. Typically a conversation of about 20 minutes allows for completion of all three steps within an hour. The participants determine who stops the conversation.

If there are external devices connected to the computer system, there are window displays **712** that allow the external devices, such as external video and/or audio devices to be used for the interactive session, for example, if an external camera plugged into a USB port of the computer system is to be used and not be the webcam internal to the computer system. However, under some conditions participants might choose to use the internal camera system with a prism. Window **714** displays the identification information, such as the

first name of the first participant. Window **716** displays the identification information, such as the first name of the second participant. These windows **714**, **716** display the identification information of each participant, with the left-right position being consistent with their position on the video display portion **704**. The position selection windows **718**, **720**, when clicked, establish which person is seated on the left or right, not only as they are seated before the computer system but also on the video recording screen. The participants may select their names from the menu of users **722** displayed at the bottom of the user interface **700**. The menu of users **722** displays participants and information. The actual identifying information gathered from participants can vary, depending on the application, whether it is for personal use, teaching, research, or some specific service such as counseling, sales, or coaching. Each participant, however, can be assigned a unique identification number. The Add Name button **724** allows a participant to enter their identification information into the menu of users **722**. The Update button **726** permits a participant who has already entered information into the menu of users **722** to modify and update their entered data.

As an example, a conversation may include some purpose and agenda agreed upon by the participants, especially when there is some service being provided by one participant to the other, such as in health services, sales services and training services, and business services. The face-to-face interactions in different settings with different agendas, standards of practice, etc. are understandably quite different, but a premise of the empirical method is that there are always common elements and viewpoints which the participants themselves can observe and report. Also, even within a conversation with clearly agreed upon goals and agenda, as participants interact they make decisions about how to proceed in accomplishing an agenda. With these considerations in mind, it is important to note that the procedure does not require any specific agenda or topic of conversation. Indeed, from the empirical perspective of the process, the topic or agenda of the conversation can be deemed irrelevant. Participants can talk about anything, anyway they choose, whatever their viewpoints of each other, because the process focuses not so much on what they do face to face but on how they view what they do. It is their viewpoints of themselves and each other that matters, and the method and the learning tool described herein allow the participants themselves to define and report their viewpoints in an empirical fashion, wherein their viewpoints are anchored in observable events of which both participants are not only observing but also being observed. The conversation ends at a predetermined time agreed on by the participants or they may decide when they have spoken long enough. The recording ends when they click on the Stop button **710**. It is also possible that during the course of their conversation they may be interrupted (e.g., an unexpected telephone call, a bathroom break, etc.), in which case they can pause the recording process and resume after the break. Typically, however, the conversation proceeds without interruption and when participants stop the recording process, they can move on to Stage 2, the Reviewing Stage.

FIG. **8** shows an example user interface **800** for the Reviewing Stage. The Reviewing Stage may include one or more of the following procedures.

1. Establishing a location for suitable viewing and responding to a recorded conversation;

2. Selecting which recorded conversation to view;

3. Positioning of participants relative to the computer system;

4. Placing vertical blinder on computer system screen if necessary;

5. Plugging in wearing headphones if necessary;

6. Practicing with apparatus (optional);

7. Starting the video playback;

8. Responding to query statements;

9. Pausing the viewing process if unexpected interruptions occur;

10. Variations in how and when the viewing takes place; and/or

11. Variations in types of response apparatus.

Establishing a location for suitable viewing and responding to the recorded conversation is similar to establishing the location for a private, uninterrupted conversation. Stage 2 requires the formation of a setting where viewing can be done in privacy and without interruptions. A private room without visual distractions or background noises may be preferable, such as in an office, living room, kitchen or possibly seating in a vehicle. Participants should have adequate seating to relax and focus on the task at hand. Yet, in certain circumstances, it might be preferable for participants to view and respond in a large room where other people are present and talking. In such a case, the participants can seat themselves with their backs to a wall and place the computer system on a table facing them. Both of them would wear headphones to hear the soundtrack of their conversation. Participants need to be attentive to time available to them for viewing, since viewing and responding requires a few minutes more than the length of the conversation itself.

When participants move directly to Stage 2 after completing Stage 1, they will not need to choose which recorded conversation to view. On the other hand, it is possible for them to start with Stage 2 after a period of time has passed. For Stage 2, the user interface allows the participant to select and access the desired audio-video data file for playback and to perform the Review Stage.

The interface **800** has a data file window **802** listing the various recorded conversations as a selectable data listing. Each conversation data file is labeled with the date and identification information of the participants. The data file window **802** is configured to allow the data to be searchable, organizable, and/or selectable for accessing the data via the user interface. The playback screen display **804** shows the video file being played back, with both participants, each viewed from the perspective of the other person. Once the participants start the viewing process, the video recording plays back preferably nonstop. The nonstop playback allows for review data to be gathered in real time. The video control slider bar **806** may be provided to indicate which point in time the recorded video is being shown. The identification windows **808**, **810** display the identification information of each participant, with the left-right position being consistent with their position on the playback screen display **804**.

When the user interface **800** is being shared by both participants during the Review Stage, a screen divider **812** preferably is placed on the lower half of the computer system screen so that each person can view only his/her lower section of the computer system screen where both query statements and response choices are presented. The function of the screen divider **812** is to provide query statements to and responses from each participant, which are fully independent so that their observations are empirical and unbiased. Response choices windows **814**, **816** are presented to each participant.

The wording and number of choices (ranks) of the response choices can vary to accommodate different applications, and the response options represent a range of choices from low to

high, from which a participant can select. Also, the response choices do not change while participants are viewing their conversation in order to provide consistency over time, a feature that permits participants to assess changes over the course of their conversation. Response choices windows **814**, **816** show five response choices ranging from "Not At All" to "Very Much." Each participant can select a response choice. The chosen response is highlighted in a color specific to each participant (e.g., red, green, etc.). Participants may change their response choice as long as the query statement is on the screen. It is possible for a participant to make no response to a query statement by not selecting on one of the options while the query statement is being presented. An embodiment of the user interface **800** presents query statements preferably for ten seconds with a five-second latency or pause period between query statements. When a participant does not respond to a query statement, this is also considered to be relevant information, such as, for example: 1) the participant doesn't have enough time to respond, 2) the participant became involved in the recorded conversation and forgot to respond, or 3) the participant is not responding at all, possibly not even attending to the video recording. Query statement Windows **818**, **820** display the specific query statements, one to each participant. The user interface **800** shows one dimension of affect, "Confused," being queried at the same instant from both participants but from two different viewpoints. Mary on the left side is reporting she feels "A Little Confused," and her partner, John, on the right side, is reporting she seems to be "Not At All Confused." Thus, the Self-View of one participant can be compared later with the partner's Other-View in the Analysis Stage from the data entered by the participants during the Reviewing Stage.

The user interface **800** includes a viewing process that permits a number of variations as to when, how, and by whom Stage 2 is completed. These options include, but are not limited to the following.

1. The viewing process can be paused by the participants and can be resumed.
2. The participants may decide to view only a portion of their conversation or all of their conversation.
3. The participants could take a break after Stage 1 (Recording) and continue with Stage 2 at a later time.
4. The participants could take turns completing Stage 2, and their separate data files combined for Stage 3 feedback which they could discuss together or at a later time.
5. The same video recording could be viewed by observers other than the participants on the recording. In such cases the query statements could be identical to those given the original participants or an entirely different set of query statements. The method, system, and device described herein allows for a great deal of flexibility for such purposes as intervention, training, and research in such diverse settings as health services, sales, business, and education. For example, medical students in a class on interviewing could view a recording of their instructor interviewing a patient, and as they watch, they are also presented with the same query statements answered by the patient, and each student attempts to identify how the patient responded. Students respond on handheld wireless units, and their responses are compared with the responses of the patient. Whatever the variations, there is a consistent linking between a particular face-to-face recorded event and a particular set of query statements.

Several kinds of data are collected as participants are responding to query statements. The response to each query statement is recorded to the memory of a computer system and/or server, including no response to a query statement. A no response to a query statement is considered relevant information which the participants themselves could clarify. The query statements are displayed on the screen for a limited time, e.g., 10 seconds with a 5-seconds pause between query statements, and are presented at a regular cadence, e.g., every 15 seconds. The regular cadence helps the participants habituate to the response task and does not change regardless of what happened in the face-to-face interaction. The response time for each query statement is also recorded, and this is calculated by the time between onset of a query statement presentation and the final response choice before the end of the presentation time. Response times are considered to be valuable information in assessing not only the ability of a participant to complete the task but also identify task complexity. Other forms of data collection are also possible. For example, participants could wear a finger clip that would monitor heart rate and galvanic skin response during their face-to-face interaction in Stage 1 and as they are completing Stage 2. Participants may have physiological reactions when they are actually conversing and when they are viewing their conversation, and the physiological measures may correlate with the responses to query statements. Data is gathered in real time directly from the participants themselves in an efficient, systematic way that is relevant to how the participants understand and relate to each other.

FIG. **9**A shows a user interface **900** for the Analyzing Stage of the learning tool described herein. The user interface **900** provides feedback and analyses of results to both participants in a highly visual and interactive fashion. The user interface **900** engages the participants by identifying elements and rankings, and comparing the elements and rankings across the real time of the conversation. This information becomes easily accessible and presented in an intuitive, easily understandable way, which promotes learning. The learning tool described herein may include the user interface **900** as a relationship learning laboratory tool to engage and measure participants' perceptions, assumptions, and hypotheses about each other. This is the Knowledge of Results principle: we learn to the extent we know the outcomes of our efforts.

The user interface **900** shows a dropdown menu of options **902** from which a participant can choose to capture a new video, view a previously recorded video, and/or view an analysis of data collected from a reviewed video. The user interface **900** includes options to increase and/or to decrease the size of the video displayed on the computer system screen. The Left Report presents results for the person seated on the left, in this example Mary. The Right Report presents results for the person on the right, which in this example is John.

The user interface **900** includes a video screen **904** for displaying the video selected to be viewed. The video screen **904** shows the participants as they were recorded. The video screen **904** also shows the time frame (minute:second, e.g., 10:20) of the combined audio-video data file as the video is played back. A slider control **906** is provided so that it can be moved by the viewer back and forth so that any part of the recorded conversation can be immediately accessed. The affect dimensions menu **908** shows the affect dimensions and rankings that are analyzed. In the example shown in FIG. **9**, the affect dimension "feels confused" is being analyzed. Clicking on any one of the other dimensions in the menu **908** would reconfigure field display **910** and graph display **912**. The field display **910** shows the identification information, e.g., the first name, of each participant, and their three viewpoints (Self-View, Other-View, Social-View) below the identification information. The viewpoints are shown with connections that visually display assumptions of the viewpoints, described more in detail below (and shown in FIGS. **14-16**).

Clicking first on the viewpoint of one person and next on a viewpoint of the other person highlights both fields and displays a line connecting both viewpoints. In this way, the user interface **900** allows attention to be focused on exactly which viewpoints are being compared. Inside each viewpoint box includes text information, which states the viewpoint in terms of the dimension selected in field display **910** (e.g., "confused"). A graph display **912** shows a graph of the individual responses of each participant over time. Averaged field **914** shows an average of both rankings in graphic form. The slider **906** shown below the graph display **912** is synchronized with the graph display **912** and the video display, so that participants can move the graph slider **906** to a position of interest on the graph display **912** and the video display on the video screen **904** will also display that synchronized moment.

This synchronization between the graph **912** and the video display on the video screen **904** allows participants to clarify and share their viewpoints, not in abstract generalities but in the specific context from which their viewpoints were derived. When they compare their viewpoints, they become engaged in a process of examining and testing out the accuracy of their viewpoints. When participants respond to a query statement, they are doing so in the context of specific face-to-face events, events which can be interpreted in several ways. This is to say that a participant's responses to query statements could be based on: 1) overt behaviors of the other person, 2) overt behaviors of the participant, 3) memories of past events which somehow influence a participant's perception, 4) interpersonal factors between the participants (e.g., perception of authority, and past experiences in the relationship history of both participants). The point here is that when a participant responds to a query statement or set of query statements, it may not be self-evident to others why he/she responded in a particular manner. The best person to explain responses to query statements is the participant him/herself, and invariably participants seem to come up with understandable reasons for their responses.

FIG. **9**B shows another example interface **950**, that is similar to the interface **900** shown in FIG. **9**A, but also includes another video window **952** showing and which can capture another image and/or video of the substantially face-on image(s) of persons reviewing the combined audio-video data file. Other parts of the interface **950** are similar to those in interface **900** and similar components are identified using the same reference characters. The interface **950** provides another means of capturing yet another social interaction of the participants as they review, recall, and discuss the moments of similarities and differences in their viewpoints. When the recording process is on, the interface **950** records, not only the image shown in the video window **952**, but also all of the interactions the participants perform with the interface **950**. Audio conversation is also recorded. Thus, a new audio-video data file is created that includes the face-on images of the participants shown in the video window **952**, and all of the clicks and interface changes that the participants perform as they interact with the interface **950**, and the audio conversation during the discussion that can be had between the participants. This can lead to further comprehension and further learning of the social relationship between the participants.

FIG. **10** shows an example of a user interface **1000** (or a portion of a user interface) for responding to a query statement **1002** when an audio record is being reviewed. The function of the audio recording is to provide something to review, and the main function of the audio recording is to act as a stimulus for recall. The recall process, then, is not entirely dependent on a video recording. A feature is that whatever is recorded prompts recall and serves as a reference point in real time so that query statements are presented in a structured manner so that both participants are responding at the same points in real time. A sound recording can prompt recall. Thus recording the conversation of two participants who are in separate physical locations, each with a computer system onto which the recorded conversation is stored. The possible response choices **1004** are provided in the interface **1000**.

The structure of the query statement presentation can include the elements of face-to-face interactions, i.e. multiple viewpoints, affect, and other interpretive rankings Various affect labels can be employed as long as they sample the dimensions of affect described previously. FIG. **11** shows some example query statement responses. Query statements need not consist only of words but could also be symbolic as described previously. Likewise, the response choices may vary from a binary choice (yes, no) to multiple-choice. Social psychology research has developed various ranking scales, which might be applied. For example, icons representing varying degrees of emotional states **1102** may be used as responses to query statements. For example, semantic differential words to indicate their preference **1104** may be used. For example, a simple continuum without gradations **1106** may be used.

The language used for the query statements and responses can be any spoken language, preferably being the language preferred by the participants. It is also possible for query statements to be presented in the native language of each participant. For example, query statements to one participant might be in French and Arabic to another. For multilingual inquiries, translated query statements should be tested for accuracy of meaning. For query statements using affect labels, comparable translations should not be limited to the meaning of particular words but should sample the different dimensions of affect.

The timing of the query statements can vary, both for the duration of query statement presentation and for the latency interval between query statements. Certain applications and populations may require a slower or faster rate of presentation. Because the reaction times for each query statement are recorded, it is possible to identify optimal timing parameters for query statement presentation and latency between query statements. Likewise, analysis of the reactions times for different query statements, viewpoints, and affect dimensions may yield significant information relevant to understanding face-to-face interactions. The query statements are linked in real time to the video playback so the context of the query statement response can be identified.

For group applications, there are multiple viewers who are all presented with identical query statements, and each viewer responds privately by means of wireless instrumentation. While all participants in the group are presented with the same query statement, the participants also complete several identifying query statements, such as gender, age, race, job responsibility, etc. The analysis stage presents aggregate results for the entire group as well as separating the results for different groups. For some applications the identifying query statements might include personality types, such as Introvert . . . Extrovert, or different personal preferences. Likewise, the query statements might refer to different viewpoints, Self, Other, Social. Groups can have some agenda, and specific query statements might be tailored to address issues relevant to the agenda.

The participants can review their interactions that include themselves. But once a recording has been made, the recording can be reviewed by other people and in several different ways. For example, a recording of a dyad might be reviewed,

but rather than by the original participants, other persons might attempt to answer the original query statements as if they were the person on the screen. Analysis of the results would involve comparing responses of the secondary viewers with the responses of the original participants. This application would seem to have much potential in training people to gain listening and empathy skills. Another variation would be to have an entire group review a dyad recording and respond to the original query statements. Such an application may help people learn certain tasks, such as interviewing or specific counseling skills.

FIG. **12** shows an example review inquiry **1200** showing a first person's query statement data **1202**, being compared to a second person's query statement data **1204**. The first and second persons respond privately and cannot see the responses of the other's. Thus, the autonomous, independent observation of each is protected so that the viewpoints are truly independent and not immediately influenced by the other person's responses. The first and second persons are not comparing notes as they observe, and independence of reporting gives credibility to any patterns that emerge from data analysis. It also gives credibility to the persons themselves, who respond, for better or for worse, and can recognize their own responses. This independence between observers forms the foundation of empirical inquiry and engages participants in their own scientific inquiry. The observations are synchronized along the timeline **1206** in real time with the playback recording of behavioral events, each observation is anchored in the behavioral record. Thus, "snapshots" can be examined in reference not just to time but also the behavioral context. Both first and second persons make observations from three distinct viewpoints: 1) Self viewpoint: how the first person views herself; how the second person views himself, 2) Other viewpoint: how the first person views the second person; how second person views the first person, and 3) Social viewpoint: how the first person thinks the second person is viewing her; how the second person thinks the first person is viewing him. Observations from each viewpoint may vary as to how much they are based on overt behaviors and/or covert private cognitions that include both current perceptions and recall of past experiences. Observation data are in response to specific query statements (usually about affect) presented at 15-second intervals and repeated over the duration of the viewing. The query statements are not open-ended but present a scale of choices such as: "not at all", "a little", "moderately", "quite a bit", "very much." This structure permits quantification and objective measurement, which forms a database to identify patterns not only within a single session but also across multiple sessions by the same or different participants. Quantification also permits a summary of meaningful data for the purpose of research, training, and learning. The observation data are not only synchronized to the behavioral record but they are also linked together by the behavioral record on the recording so that both first and second persons are observing the same overt behaviors but from different points of view. This pairing or linking of query statements permits meaningful data analysis and discussion about different viewpoints by the participants.

The fixed sequence of query statements can be repeated. This structure is like a net of questions catching the observations of both participants over their entire interaction. For example, each participant might be asked to rank how comfortable he/she felt every four minutes. After a 40-minute conversation, each participant would have reported his/her level of comfort ten times.

Because participants are observing their face-to-face interaction, each observer is also the object of observation by the other person. This is done empirically by pairing different points of view (self-view for Person A and other-view for Person B). Examples of this reciprocal pairing occur at, for example, seconds 0, 15, 60 and 75. This reciprocal pairing of query statements makes it possible to assess perceptiveness and expressiveness, because it permits correlating the Self-View of one person with the Other-View of the other person which are synchronized to occur at the same instant in time. Likewise, the social-view (how I think the other person is viewing me) engages each person in hypothesizing how he or she thinks they are coming across to the other.

FIG. **13** shows example query statement structure **1300** which include three viewpoints **1302**, four dimensions of affect **1304**, and a cognitive assessment **1306** with four cognitive assessment rankings **1308**. In this embodiment, there are sixteen query statements with multiple viewpoints, and so on. These query statements are presented to both persons (Person A, Person B in this example). Thus an example Query statement that can be presented is "Here I feel Confused." Another Query statement that can be presented is "Here (name of partner) feels confused." Another Query statement that can be presented is "Right here (name of partner) probably views me as feeling confused." Another Query statement that can be presented is "Here I feel Confident." Another Query statement that can be presented is "Here I feel understood." And so on. These query statements are preset, and the actual affect labels may vary, but query statements are from the same affect dimension, e.g., high negative affect, and so forth. The position of each dimension on the inquiry net provides for consistency, making analysis of the results more efficient when different affect labels are used.

The process for the method described herein is to define a process that is virtually invisible and unnoticed until assumptions are proven wrong. This process is considered here to be at the core of human understanding and misunderstanding. The following illustrates this process with reference to a single, static dimension, perception of physical height. The elements of this process are two individuals, each with three viewpoints. When viewpoints are compared, they form the basis for relationship assumptions. When relationship assumptions lead to behavioral actions, they can be considered as hypotheses which both parties use as working assumptions to test the validity of their assumptions.

To focus on the process is to emphasize the fact that when people are face to face, they not only observe each other, but they also make themselves available to be observed. When they allow themselves to be observed, they attempt to observe themselves through the eyes of another. Thus, three levels of observation forming the foundation of the three viewpoints, Self, Other, and Social, are possible. Human beings are always defining and understanding ourselves, not so much abstractly, but specifically, in how we see ourselves in relationship and relating to other human beings.

FIG. **14** shows the elements of this process **1400**, which involves three viewpoints: 1) Self-View **1401** (how I view myself), 2) Other-View **1402** (how I view the other person), 3) Social-View **1403** (how I think another person views me). The simplest human relationship is comprised of two people, a dyad. Both parties have three viewpoints **1401**, **1402**, **1403** and they can state these viewpoints **1401**, **1402**, **1403** along any number of dimensions, for example: height, weight, age, and gender. Using physical height as a dimension of comparison, one can state his/her belief about his/her own height, his/her estimate of another's height, and his/her estimate of another's belief of one's height. These three viewpoints **1401**,

1402, **1403** are always present and when viewpoints **1401**, **1402**, **1403** are compared, they can also be considered as assumptions.

An assumption is defined here as any viewpoint assumed to be true until proven otherwise. The assumptions **1404**, **1405**, **1406** become apparent when we compare viewpoints **1401**, **1402**, **1403**. In relational terms we are always comparing, (i.e. defining, understanding, measuring) ourselves to others.

FIG. **15** shows an example of comparing viewpoints and relational assumptions **1500**. When different viewpoints are compared, assumptions become evident, and the first step in dealing with assumptions is to define them. An assumption of similarity (or dissimilarity) is implicit in comparing my self-view with my other-view, e.g., how tall one believes he is compared to how tall he believes the other to be. If these two viewpoints are very close, an assumption of similarity is made. If they are very different, an assumption of dissimilarity is made. An assumption of familiarity (or unfamiliarity) is implicit in comparing one's other-view with one's social-view, e.g., how tall one believes another to be is compared to how tall one thinks another believes one to be. An assumption of congruence (or incongruence) is implicit in comparing one's self-view with one's social-view, e.g., how tall one believes one to be is compared to how tall one thinks another believes the one to be. The premise being that the minds are always active with these three basic viewpoints when dealing with human relationships even though humans might not be aware of them. Our minds are always monitoring positions relative to surroundings, best exemplified by our perceptual-motor nervous system. The five senses monitor the surroundings and supply information to the brain, which integrates this information so as to direct the motor activity in the surroundings, which, in turn, changes one's perception. Relational assumptions are part of the perceptual motor processes as the mind integrates information it perceives about other human beings. FIG. **15** shows some of these assumptions in regard to a rather static dimension, perception of physical height. When these assumptions arise from viewpoints about another person, it is possible to make additional comparisons of viewpoints, the viewpoints of the other person, viewpoints not only within each person (i.e. assumptions) but also between persons.

FIG. **16** shows an example of comparing the viewpoints between people for interpersonal hypothesis testing **1600**. Assumptions emerge from comparison of each person's viewpoints, and assumptions can be considered as hypotheses each person has about the other. Hypotheses are working assumptions, i.e. assumptions, which have behavioral consequences and which are not assumed as true until proven otherwise. The validity or "truth" of a hypothesis can be tested when one person's hypothesis matches or agrees with another person's hypothesis. FIG. **16** shows how testing can occur when different viewpoints are compared between two persons. For the sake of illustration the dimension of each viewpoint is perception of physical height, a static dimension, which does not change quickly, and for this reason the time frame and behavioral context for the comparisons is not critical. It makes little difference whether both parties state their viewpoints an hour, a day, or even weeks apart from each other. In this example time is not a factor, and the focus here is on the comparisons between each person's viewpoints. Proximity or real similarity is used herein as the degree of similarity between the Self-Views of both persons. This is the place to start any comparison of viewpoints between persons.

When dealing with relational assumptions or hypotheses, the first consideration is to clarify how much in agreement both parties are independent of their views of each other. This is done by a comparison of each person's Self-View reported independently. Failure to take this into account leads to confusion about the other viewpoints (Other and Social). For example, if one person seems very accurate in describing another person, it's always possible that the first person is not distinguishing between the three viewpoints and is simply projecting his/her Self-View, which could be very accurate, if both persons are indeed very similar.

Perceptiveness is used herein as the comparison between my Other-View and your Self-View. If one can identify how another sees himself/herself, the one can be considered to be perceptive. Perceptiveness implies expressiveness. The reciprocal of one person's perceptiveness is the other person's expressiveness. Some people are more expressive than others, and this is a factor that can influence how perceptive other people are in relation to them. With our example of perception of physical height, people express their height differently, i.e. some have more erect posture, making their physical height more evident to others. In the example of FIG. **16**, only "My" perceptiveness is depicted, for the sake of simplicity. But "Your" perceptiveness could also be represented by an arrow connecting Your Other-View and My Self-View. When considering perceptiveness, it becomes clear that proximity or real similarity between two people needs to be taken into account. When two people are very similar (e.g., they have the same physical height), it may not be possible to separate perceptiveness from mere projection. It's as if to say: "If everybody is just like me, then I'm always accurate in perceiving them. My relational assumptions are always true." However, when two people are indeed different on some dimension, then perceptiveness (and expressiveness) becomes more important in accuracy. This would occur when our Self-Views are quite different.

Familiarity and Congruence are comparisons between the Other-View and Social-View across both persons. Familiarity is defined here as the comparison between My Other-View and Your Social-View. If how one sees another matches how another thinks the one sees the other, one can be considered to be quite familiar with the other. Congruence is used herein as the comparison between My Social-View and Your Other-View. If how one thinks another views the one matches how another actually views the one, then the one can be considered to be congruent. The reciprocal of familiarity is congruence. That is, another's congruence is the reciprocal of the one's familiarity, and the another's familiarity is the reciprocal of the one's congruence.

FIG. **17** shows an example of a summary of individual responses with graphic display **1700**. The graphic display **1700** can be provided in the graph display portion of the user interface. Individual responses to a single query statement can be summarized and presented visually so that each response can be viewed in reference when it was made in real time. This is done with a graphic display that shows a sequence of individual responses over time as in FIG. **17** where the Self-Views about feeling confident from both persons are presented. As FIG. **17** shows, there is some variability in how confident the two participants, e.g., Mary and John, reported feeling, with John reporting a higher level of confidence overall. Minute 9 is striking because both persons reported very different levels of confidence. Mary viewed herself as most confident at minute 25. When presented with such a graph, participants often cannot recall the specifics that led them to respond in a certain way. However, they can replay the exact moments of their recorded conversation when they responded to the query statement, at which time they usually recall the basis for their particular response. One feature of the method, system, and device described herein is the ability

to link viewpoints with the behavioral events that contributed to the viewpoints. When this linkage takes place, learning can occur both at the individual and relationship levels. In Knowledge of Results terms, the graphs connect viewpoints (anticipated results) with behavioral actions and provide observed results. Such connections generate the associations necessary for individual learning to occur. Relationship learning occurs because the responses of both participants are presented over time, allowing them to compare viewpoints and see together what simply cannot be seen alone. The graphs help participants to look back in an empirical way, allowing them to see for themselves. This process is at the core of learning, discovery learning rather than performance learning. The feedback engages participants in experimenting and discovering on their own initiative.

FIG. **18** shows another example of a graphic display **1800**, this time comparing, again as an example two participants Mary and John, Mary's Other-View with John's Self-View. The graphic display **1800** can be provided in the graph display portion of the user interface. Both agree that John was moderately to very much confident, but there is some variability where they were more in agreement (e.g., minutes 25 and 37).

FIG. **19** shows another example of a graphic display **1900** that compares the viewpoints for one participant comparing his Self-View with his Other-View. The graphic display **1900** can be provided in the graph display portion of the user interface. Comparing these two viewpoints for the same person can clarify assumptions of similarity-dissimilarity. The graph displays the individual data points for each view, and examination of the graph shows that, again using the two participants Mary and John as an example, John was assuming complete similarity with Mary for the first 13 minutes of their conversation and at minutes 25 and 37.

FIG. **20** shows an example of a graphic display **2000** of data analysis across several face-to-face interactions. The graphic display **2000** includes a field display **2002** and a graph **2004**, both of which can be provided as portions of the user interface (for example, similar to field display **910** and graph **912** shown in FIGS. **9**A and **9**B). The field display **2002** is selectable such that one or more graphic link **2006**, **2008** showing the selected comparison of persons' viewpoints that are displayed in the graph **2004** is displayed. The selected comparison changes the graph **2004** that is displayed to show the associated quantified statistical values are graphed between recorded data of conversations. The example shown in graph **2004** displays the statistic of "Expressiveness" that is plotted across several conversations between a first person, "Jim" and other people, "Mary, Joseph, Roger, Amy, Bill, George, and Sam." The graph **2004** shows the statistical graphs, as an example, of Proximity (i.e. Real Similarity) and Expressiveness (Jim's expressiveness) across several partners (Mary, Joseph, Roger, Amy, Bill, George, and Sam). The graph **2004** can display any statistics generated from the data base gathered using the learning tool. The significance of the graphic display **2000** is that it permits grouped or aggregate data for identifying trends, such as across gender, age, race, role position. In this way, a significant trend can be identified, and the user could then go directly to an individual session for closer analysis of particular stored data (e.g., audio-video data and the associated data) of a specific conversations. In this way individual session data can be grouped to show a range of quantified values (e.g., satisfaction) and the user could then examine the individual sessions (e.g., the highest and lowest satisfaction sessions). This can provide great utility for learning, research, and general education.

FIG. **21** shows a flowchart according to an embodiment of the method of using a personal relationship learning tool. In an embodiment, the personal relationship learning tool includes a camera system which obtains a video data including a substantially face-on first video of the first person and a substantially face-on second video of the second person during a face-to-face conversation between the first and second persons, an audio recording system which obtains an audio data of the first and second persons during the face-to-face conversation between the first and second persons, a computer system which receives the video data and the audio data, and a ranking system which allows the first and second persons, respectively and independently, to rank first and second query statements with respect to the face-to-face conversation. In another embodiment, which is shown in FIG. **23**, the personal relationship learning tool includes a computer server connected to at least two mobile devices.

The method **3000** includes placing **3002** the first and second persons in a face-to-face relationship, either in person facing each other, or via mobile devices connected via a network for communicating therebetween, wherein the first person's face is viewable on the second person's mobile device, and the second person's face is viewable on the first person's mobile device. Then the method **3000** proceeds to obtaining **3004** audio-video data of the first and second persons, combining **3006** the audio-video data to a combined audio-video data file and storing the combined audio-video data file in a computer system or a computer server. The method **3000** includes playing **3008** at least a portion of the audio-video data file, with the computer system and/or one or more of the mobile devices, and while the audio-video data file is being played, having **3010** the first person consider the first query statement and provide a first ranking with respect to the query statement, and having **3012** the second person, independent from the first person, consider the second query statement and provide a second ranking. The method **3000** then proceeds to creating **3014** a comparison as a function of time of the first and second rankings relative to specific moments in time of the audio-video data file, and displaying **3016** to at least one of the first and second persons the comparison as a function of time of the first and second rankings relative to the audio-video data file, wherein periods of similarities and differences between the first and second rankings can be observed and discussed, which becomes points of learning.

FIG. **22** shows a flowchart of an embodiment of the method of analyzing data gathered by a personal relationship learning tool, wherein the tool includes a data gathering system that gathers data about persons during a conversation among them and a computer system connected to the data gathering system for receiving the data and storing. The tool further includes a ranking system which allows at least some of the persons to independently rank first and second query statements with respect to the conversation. The method **4000** shown in FIG. **22** includes playing **4002** the stored data (e.g., combined audio-video data) with the computer system or the computer server to allow one of the persons to rank a first query statement with the ranking system to obtain a first ranking and to allow another of the persons to rank a second query statement with the ranking system to obtain a second ranking. The method **4000** includes creating **4004** with the computer system a comparison as a function of time of the first and second rankings relative to the conversation among the persons (e.g., in the combined audio-video data). Then the method **4000** proceeds to displaying **4006** with the computer system (or the computer server or one or more of the mobile devices) the comparison as a function of time of the first and second rankings relative to the conversation among the persons, wherein periods of similarities and differences between

the first and second rankings can be observed and discussed, which then become points of learning.

An embodiment of the learning tool which includes one or more mobile devices (e.g., smart phone, tablet, etc.) is presented in detail in FIGS. **23-31**.

FIG. **23** shows a learning tool system **5000**, which includes a computer server **5002**, a first mobile device **5004**, and a second mobile device **5006** in communication via a network **5008**. The first mobile device **5004** is configured with a processor, a network interface, and a touch screen display **5010** via which a first person (Person A) **5012** can interact with the first mobile device **5004**. The first mobile device **5004** also has a forward facing camera component **5014** which is configured to capture the first person's **5012** face-on image as the first person **5012** interacts with the first mobile device **5004**. The second mobile device **5006** is also configured with a processor, a network interface, and a touch screen display **5016** via which a second person (Person B) **5018** can interact with the second mobile device **5006**. The second mobile device **5006** also has a forward facing camera component **5020** which is configured to capture the second person's **5018** face-on image as the second person **5018** interacts with the second mobile device **5006**.

System **5000** has three different configurations.

In the first configuration, the cameras **5014**, **5020** are activated to obtain audio-video data of face-on images of the users of the first and second mobile devices **5004**, **5006**. The mobile devices transmit the audio-video data to the computer server **5002** via the network **5008**. The computer server receives the audio-video data via the network and combines the audio-video data from each of the mobile devices to form a combined, time synced, audio-video data.

In the second configuration the cameras are de-activated and the touch screens **5010**, **5016** are activated to display a touch-based graphic user interface having ranking portions for receiving ranking inputs by the users. In this second configuration, the computer server is accessed to transmit the combined audio-video data and a series of query statements to the mobile devices via the network. In this way, each of the mobile devices receives the combined audio-video data and the query statements, each of the mobile devices displays the combined audio-video data on the touch screen, and displays the series of query statements overlaid on the combined audio-video data as the combined audio-video data is displayed on the touch screen, so that the series of query statements are displayed at the same time mark of the combined audio-video data for each of the mobile devices. With the touch screens activated, the users are called to provide rankings of response to the query statements. The user of the first mobile device **5004** provides a first rank, and the user of the second mobile device **5006** provides a second rank. The computer server receives the first rank and the second rank and forms a comparative rank data from the first rank and the second rank, and stores the comparative rank data to the computer-readable non-transitory computer-readable memory.

In the third configuration, the cameras and the ranking portions of the touch screens are de-activated and for at least one of the mobile devices, the comparative rank data which is stored on the non-transitory computer-readable memory of the computer server via the network, is accessed and displayed on the touch screen. In this way, the comparative rank data shows to the user periods of similarities and differences of the first rank and the second rank, and includes a comparison of the social view to the other view. The periods of similarities and differences are for being observed and discussed to become points of learning for the users.

More particularly, FIG. **24** shows a flowchart according of the method of using the personal relationship learning tool shown, for example in FIG. **23** (the personal relationship learning tool **5000** in FIG. **23**) which includes the computer server (**5002** shown in FIG. **23**) connected via the network (**5008** shown in FIG. **23**) to two mobile devices (**5004**, **5006** shown in FIG. **23**).

The method **5100** includes connecting **5102** via the network to the computer server with the first mobile device operated by a first person A, and with the second mobile device being operated by a second person B. The first and second mobile devices are connected via the network for exchanging data **5104** (e.g., communicating) so that the first and second persons A, B can have a face-to-face communication with each other, wherein the face of the first person A face is viewable on the second person's mobile device **5106**, and the face of the second person B is viewable on the first person's mobile device **5108**.

During the communicating, the method **5100** proceeds to the computer server obtaining **5110** audio-video data of the first and second persons from the first and second mobile devices, combining the audio-video data to a combined audio-video data, and storing the combined audio-video data as a computer-readable file in a computer-readable non-transitory memory of the computer server.

The method **5100** includes transmitting **5112** the combined audio-video data to the mobile devices, so then playing **5114** the combined audio-video data on the first and second mobile devices. While the combined audio-video data is being played on the first mobile device, a first query statement (or a series of first queries) is displayed on the first mobile device, and the first user provides a first ranking with respect to the first query statement by interacting with a graphical user interface displayed on the first mobile device. Further, while the combined audio-video data is being played on the second mobile device, a second query statement (or a series of second queries) is displayed on the second mobile device, and the second user provides a second ranking with respect to the second query statement by interacting with a graphical user interface displayed on the second mobile device. The first query statement and the second statement are respectively displayed independent of one another, but at the same moment in time of the time line of the combined audio-video data. For example, if the first query statement is displayed at time 0:15 seconds into the total play time of the combined audio-video data, the second query statement is displayed at time 0:15 seconds into the total play time of the combined audio-video data, although the first query statement and the second query statement are each displayed separately and independently on each of the mobile devices. Then, the method **5100** proceeds to transmitting **5116** via the network, the first ranking and the second ranking from each of the respective mobile devices. The method **5100** then proceeds to the computer server creating **5118** a comparison as a function of time of the first and second rankings relative to specific moments in time of the combined audio-video data. Then, the method **5100** proceeds to transmitting and displaying **5120** on at least one of the first and second mobile devices the comparison, wherein periods of similarities and differences between the first and second rankings can be observed and discussed, which becomes points of learning for the first and second persons.

FIG. **25** shows one of the mobile devices **5122** displaying the combined audio-video data on a screen **5124** (e.g., touch screen). The combined audio-video data shows a substantially face-on image of the first person A and a substantially face-on image of the second person B during a face-to-face conversation between the first and second persons A, B.

FIG. **26**A shows the first mobile device **5126** displaying the first query statement **5128** during playback of the combined audio-video data at a specific time during the playback. The first query statement **5128** in this example is a statement directed to how the first person A felt at this particular moment of the combined audio-video data (e.g., satisfied by a ranking of Very Much, Quite A Bit, Moderately, A Little, or Not At All). The first person can then interact with the overlaid graphical user interface and select the first rank **5130** (e.g., Moderately has been selected in FIG. **26**A). Examples of different ranks are shown above in FIGS. **10** and **11** and described above. The first mobile device **5126** transmits the first rank **5130** selected by the first user to the computer server via the network.

FIG. **26**B shows the second mobile device **5132** displaying the second query statement **5134** during playback of the combined audio-video data at a specific time during the playback. The second query statement **5134** in this example is a statement directed to how the second person B felt at this particular moment of the combined audio-video data (e.g., satisfied by a ranking of Very Much, Quite A Bit, Moderately, A Little, or Not At All). The second person can then interact with the overlaid graphical user interface and select the second rank **5136** (e.g., Very Much has been selected in FIG. **26**B). Examples of different ranks are shown above in FIGS. **10** and **11** and described above. The second mobile device **5132** transmits the second rank **5136** selected by the second user to the computer server via the network. The example shown in FIGS. **26**A and **26**B displays the same query statement ("Here I feel Satisfied"). However, the first query statement and the second query statement can differ, as described above and shown in FIGS. **12-16**.

FIGS. **27-30** show examples of a mobile device **5200** displaying the combined audio-video data **5202** created by the computer server and a graphic display **5204** of the comparative rank data which has also been created by the computer server. The combined audio-video data **5202** and the comparative rank data have been transmitted from the computer server and received by the mobile device **5200**. The graphic display **5204** of the comparative rank data can be created by the mobile device **5200**, the computer server or both. The graphic display **5204** can be similar to the graphic display **1700**, **1800**, **1900**, **2000** shown in FIGS. **17-20**. Accordingly, the graphic display **1700**, **1800**, **1900**, **2000** shown in FIGS. **17-20** can be displayed on the mobile device **5200**.

FIG. **27** shows a field display **5206** as a part of the graphic display **5204** of the user interface. The field display **5206** displays a list of terms that are associated with the comparative rank data. The field display **5206** shows, for example, that the "Satisfied" item has been selected, which then displays in the graphic display **5204** the comparative data associated with the "Satisfied" rankings between the first and second persons. The graph display **5204** can help participants to look back at their face-to-face interaction in an empirical way, allowing the first and second persons to see for themselves how they connected at a moment or moments in time of that face-to-face interaction. This process is at the core of learning, discovery learning rather than performance learning.

The mobile device **5200** in FIG. **28** shows another field display **5208** instead of the field display **5206** shown in FIG. **27**. The field display **5208** is similar to the three viewpoints described above and shown in FIG. **14**. The three viewpoints are directed to: 1) Self-View **5210** ("How I Feel"), 2) Other-View **5212** ("How I See You"), and 3) Social-View **5214** ("How I Feel You See Me"). The comparative rank data can be displayed as an association between any two of the three viewpoints **5210**, **5212**, **5214** of individual perspectives (for each of the first and second persons). When any two of the three viewpoints **5210**, **5212**, **5214** are selected, the connecting link **5216** is displayed. The graphic display **5204** displays the associated comparative rank data of the selected two of the three viewpoints **5210**, **5212**, **5214** for each of the first and second persons. For example, the field display **5206** shows that "How I Feel" data of the first person A and "How I Feel You See Me" of the first person A have been selected, which is an assumption of congruence-incongruence (**1406** shown in FIG. **14**; see also FIG. **15**).

The mobile device **5200** in FIG. **29** shows yet another field display **5218**, instead of the field display **5206** shown in FIG. **27** or the field display **5208** shown in FIG. **28**. The field display **5218** is similar to the comparative of relational assumptions described above and shown in FIGS. **16** and **20**. The field display **5218** is selectable such that one or more graphic link **5220** showing the selected comparison of persons' viewpoints that are displayed in the graphic display **5204** is displayed. The selected comparison changes the graphic display **5204** to show the associated quantified statistical values are graphed between recorded data of conversations. The significance of the graphic display **5204** is that it permits the comparative rank data to be realized in a significant way, e.g., a trend can be identified, and the user could then go directly to an individual session for closer analysis of particular stored data (e.g., combined audio-video data and the associated data) of specific conversations.

FIG. **20** shows the mobile device **5200** which includes a graphic user interface for recording **5222** an additional audio data that is associated with the combined audio-video data **5202** and the associated comparative rank data (displayed in the graphic display **5204**). The additional audio data is transmitted to the computer server and it is associated with the combined audio-video data, so that the first or the second persons can review (e.g., listen to) the additional audio data on their respective mobile devices on their own accord. This additional feedback can engage the participants in discovering additional information about the face-to-face conversation and/or their relationship on their own initiative.

FIG. **31** shows another example of a mobile device **5300**, which does not display the combined audio-video data, but does display a graphic display **5302** of the comparative rank data which has also been created by the computer server. The comparative rank data has been transmitted from the computer server and received by the mobile device **5300**. The graphic display **5302** of the comparative rank data can be created by the mobile device **5300** once the comparative rank data has been received by the mobile device **5300**. The graphic display **5302** can be similar to the graphic display **1700**, **1800**, **1900**, **2000** shown in FIGS. **17-20**.

The graphic display **5302** includes a field display **5304** and a graph **5306**, both of which can be provided as portions of the user interface (for example, similar to field display **910** and graph **912** shown in FIGS. **9**A and **9**B). The field display **5304** is selectable such that one or more graphic link **5308**, **5310** showing the selected comparison of persons' viewpoints that are displayed in the graph **5306** is displayed. The selected comparison changes the graph **5306** that is displayed to show the associated quantified statistical values are graphed between recorded data of conversations. Further, based on the graphic links selected, a term which identifies the selected graphic links can be displayed and/or highlighted in a term portion **5312** of the graphic display **5302**. For example, the selected graphic link **5308** is associated with "Assumed Similarity," which is highlighted and displayed in the term portion **5312**. Further, for example, the selected graphic link **5310** is associated with "Proximity," which is highlighted and dis-

played in the term portion **5312**. The terms and their relationships are described above and shown in FIGS. **15** and **16**.

While the disclosed learning tool and method have been described in conjunction with a preferred embodiment, it will be obvious to one skilled in the art that other objectives and refinements of the disclosed method, system, and devices may be made within the purview and scope of the disclosure. This disclosure, in its various aspects and disclosed forms, is well adapted to the attainment of the stated objects and advantages of others. The disclosed details are not to be taken as limitations on the claims.

What is claimed is:

1. A personal relationship learning system, comprising:

a network;

a computer server connected to the network, the computer server including a non-transitory computer-readable memory; and

first and second mobile devices connected to the network to be in communication with each other via the network and also in communication with the computer server via the network, each of the mobile devices having a camera to obtain an audio-video data of a face-on image of a user, and each of the mobile devices having a touch screen to display a touch-based graphic user interface for receiving ranking input by the user;

said system having first, second, and third configurations:

a. said first configuration providing for said cameras to be activated to obtain audio-video data of face-on images of said users, providing for each of the mobile devices to transmit the audio-video data to the computer server via the network, providing for the computer server to receive the audio-video data from each of the mobile devices via the network, providing for the computer server to combine the audio-video data from each of the mobile devices to form a combined audio-video data, and providing for the combined audio-video data to include at least two of the audio-video data to be time synced together;

b. said second configuration providing for said cameras to be de-activated and for the touch screens to be activated to display a touch-based graphic user interface having ranking portions for receiving ranking inputs by the users, said second configuration also providing for the computer server to transmit the combined audio-video data and a series of query statements to the mobile devices via the network, so that

each of the mobile devices receives the combined audio-video data and the query statements from the computer server,

each of the mobile devices displays the combined audio-video data on the touch screen, and displays the series of query statements overlaid on the combined audio-video data as the combined audio-video data is displayed on the touch screen, wherein the series of query statements are displayed at the same time mark of the combined audio-video data for each of the mobile devices,

the series of query statements to first one of the mobile devices comprising:

a first query statement for a first person, requesting to assume a first viewpoint, the first viewpoint including a social view of how the first person thinks the second person is viewing the first person, the touch screen allowing the first person to provide a first rank to the first query statement, the first rank being transmitted to the computer server via the network,

the series of query statements to second one of the mobile devices comprising:

a second query statement for a second person, requesting to assume a second viewpoint, the second view point including an other view of how the second person views the first person, the touch screen allowing the second person to provide a second rank to the second query statement, the second rank being transmitted to the computer server via the network,

the computer server receiving the first rank and the second rank and forming a comparative rank data from the first rank and the second rank, and storing the comparative rank data to the computer-readable non-transitory computer-readable memory; and

c. said third configuration providing for said cameras and said ranking portions of said touch screens to be de-activated and for at least one of the mobile devices to access the comparative rank data stored on the non-transitory computer-readable memory of the computer server via the network, and display the comparative rank data on the touch screen, wherein the comparative rank data shows periods of similarities and differences of the first rank and the second rank, the comparative rank data including a comparison of the social view to the other view, wherein the periods of similarities and differences are for being observed and discussed to become points of learning.

2. The personal relationship learning system according to claim **1**, wherein the first query statement is never displayed on the touch screen of the second one of the mobile devices.

3. The personal relationship learning system according to claim **2**, wherein the second query statement is never displayed on the touch screen of the first one of the mobile devices.

4. The personal relationship learning system according to claim **1**, wherein the second query statement is never displayed on the touch screen of the first one of the mobile devices.

5. The personal relationship learning system according to claim **1**, wherein the computer server communicates a social network data to the mobile devices via the network, and at least one of the mobile devices displays a social network interface from the social network data received from the computer server.

6. The personal relationship learning system according to claim **1**, wherein the computer server communicates a dating network data to the mobile devices via the network, and at least one of the mobile devices displays a dating network interface from the dating network data received from the computer server.

7. A personal relationship learning tool, comprising:

a network;

a computer server connected to the network, the computer server comprises a computer-readable non-transitory computer-readable memory; and

a first mobile device and a second mobile device connected to the network to be in communication with each other via the network and also in communication with the computer server via the network;

wherein the first mobile device comprises a camera which obtains a first audio-video data of a face-on image of a first user, and a touch screen for displaying a touch-based graphic user interface for receiving input by the first user;

the second mobile device comprises a second camera which obtains a second audio-video data of a second face-on image of a second user, and a second touch screen for displaying a second touch-based graphic user interface for receiving input by the second user;

the first mobile device transmits the first audio-video data to the second mobile device via the network, the second mobile device transmits the second audio-video data to the first mobile device via the network, the first mobile device displays the second audio-video data received on the touch screen, and the second mobile device displays the first audio-video data received on the second touch screen;

the first mobile device transmits the first audio-video data to the computer server via the network, and the second mobile device transmits the second audio-video data to the computer server via the network;

the computer server combines the first audio-video data and the second audio-video data to be time synced together to form a combined audio-video data;

the computer server transmits the combined audio-video data and a series of query statements to the first mobile device via the network;

the first mobile device receives the combined audio-video data and the query statements from the computer server;

the computer server transmits the combined audio-video data and a second series of query statements to the second mobile device via the network;

the second mobile device receives the combined audio-video data and the second query statements from the computer server;

the first mobile device displays the combined audio-video data on the touch screen, and displays the series of query statements overlaid on the combined audio-video data as the combined audio-video data is displayed on the touch screen,

the second mobile device displays the combined audio-video data on the second touch screen, and displays the second series of query statements overlaid on the combined audio-video data as the combined audio-video data is displayed on the second touch screen,

wherein the series of query statements and the second series of query statements are displayed at the same time mark of the combined audio-video data,

the series of query statements comprise:

a first query statement for a first person, requesting to assume a first viewpoint, the first viewpoint including a social view of how the first person thinks the second person is viewing the first person, the touch screen allows the first person to provide a first rank to the first query statement, the first rank being transmitted to the computer server via the network,

the second series of query statements comprise:

a second query statement for a second person, requesting to assume a second viewpoint, the second view point including an other view of how the second person views the first person, the touch screen allows the second person to provide a second rank to the second query statement, the second rank being transmitted to the computer server via the network,

the computer server receives the first rank and the second rank, forms a comparative rank data from the first rank and the second rank, and stores the comparative rank data to the computer-readable non-transitory computer-readable memory,

the first mobile device can access the comparative rank data stored on the computer-readable non-transitory computer-readable memory of the computer server via the network, and display the comparative rank data on the touch screen, wherein the comparative rank data shows periods of similarities and differences of the first rank and the second rank, the comparative rank data includes a comparison of the social view to the other view, wherein the periods of similarities and differences are for being observed and discussed becoming points of learning to the first user.

8. The personal relationship learning tool according to claim **7**, wherein the first query statement is never displayed on the second touch screen of the second mobile device.

9. The personal relationship learning tool according to claim **8**, wherein the second query statement is never displayed on the touch screen of the first mobile device.

10. The personal relationship learning tool according to claim **7**, wherein the second query statement is never displayed on the touch screen of the first mobile device.

11. The personal relationship learning tool according to claim **7**, wherein the comparative rank data is displayed in a social network interface displayed on the touch screen of the first mobile device.

12. The personal relationship learning tool according to claim **7**, wherein the comparative rank data is displayed in a dating network interface displayed on the touch screen of the first mobile device.

13. The personal relationship learning tool according to claim **7**, wherein the second mobile device can access the comparative rank data stored on the computer-readable non-transitory computer-readable memory of the computer server via the network, and display the comparative rank data on the second touch screen, wherein the comparative rank data shows periods of similarities and differences of the first rank and the second rank, the comparative rank data includes the comparison of the social view to the other view, wherein the periods of similarities and differences are for being observed and discussed becoming points of learning to the second user.

14. The personal relationship learning tool according to claim **13**, wherein the comparative rank data is displayed in a social network interface displayed on the second touch screen of the second mobile device.

15. The personal relationship learning tool according to claim **13**, wherein the comparative rank data is displayed in a dating network interface displayed on the second touch screen of the second mobile device.

16. A method for gathering a comparative personal relationship ranking between individuals, comprising:

a computer server receiving a first audio-video data sent from a first mobile device via a network;

the computer server receiving a second audio-video data sent from a second mobile device via the network;

the computer server creating a combined audio-video data by combining the first audio-video data and the second audio-video data;

the computer server storing the combined audio-video data on a computer-readable non-transitory computer-readable memory;

the computer server transmitting the combined audio-video data and a series of query statements to the first mobile device via the network;

displaying the combined audio-video data and the series of query statements on a display of the first mobile device, and while the combined audio-video data is being displayed the first mobile device collecting rank data associated with the series of query statements;

the first mobile device transmitting the rank data to the computer server via the network;

the computer server transmitting the combined audio-video data and a second series of query statements to the second mobile device via the network;

displaying the combined audio-video data and the second series of query statements on a display of the second

mobile device, and while the combined audio-video data is being displayed the second mobile device collecting second rank data associated with the second series of query statements;

the second mobile device transmitting the second rank data to the computer server via the network;

the computer server receiving the rank data and the second rank data and storing the rank data and the second rank data;

the computer server forming a comparative rank data from the rank data and the second rank data, and storing the comparative rank data to the computer-readable non-transitory computer-readable memory, wherein the comparative rank data shows periods of similarities and differences of the first rank and the second rank associated with the combined audio-video data; and

the computer server providing access to the comparative rank data to the first mobile device, so that when the first mobile device requests the comparative rank data from the computer server, the computer server transmitting the comparative rank data to the first mobile device via the network, wherein the first mobile device can display the comparative rank data.

17. The method according to claim **16**, further comprising:

the computer server providing access to the comparative rank data to the second mobile device, so that when the second mobile device requests the comparative rank data from the computer server, the computer server transmitting the comparative rank data to the second mobile device via the network, wherein the second mobile device can display the comparative rank data.

18. A method of analyzing data gathered by a personal relationship learning tool, the method comprising:

a mobile device transmitting a request for an audio-video data to a computer server via a network;

the computer server receiving the request, granting the request, and then transmitting the audio-video data to the mobile device;

the mobile device receiving the audio-video data, displaying the audio-video data, and during the displaying of the audio-video data collecting rank data from a user at specific moments in time of the audio-video data;

the mobile device transmitting the rank data to the computer server; and

the computer server storing the rank data and comparing the rank data to another rank data received from another user, then creating a comparative rank data, and then storing the comparative rank data to a computer-readable non-transitory memory.

19. The method according to claim **18**, further comprising:

the mobile device transmitting another request for the comparative rank data to the computer server via the network;

the computer server receiving the another request, granting the another request, and then transmitting the comparative rank data and the audio-video data to the mobile device; and

the mobile device receiving the comparative rank data and the audio-video data, displaying the comparative rank data as a graphic display and the audio-video data.

20. A method of using a personal relationship learning tool for first and second persons, said tool including a camera system which obtains a video data including a face-on first video of the first person and a face-on second video of the second person during a face-to-face conversation between the first and second persons, wherein the face-on first video includes facial expressions and eye movements of the first person, and the face-on second video include facial expressions and eye movements of the second person, an audio recording system which obtains an audio data of the first and second persons during the face-to-face conversation between the first and second persons, a computer system which receives the video data and the audio data, a ranking system which allows the first and second persons, respectively and independently, to rank first and second query statements with respect to the face-to-face conversation, the method comprising:

placing the first and second persons in a face-to-face relationship;

obtaining the video data and the audio data;

combining the video data and the audio data to an audio-video (AV) data file and storing the AV data file in the computer system;

playing at least a portion of the AV data file with the computer system, and while the AV data file is being played, having the first person consider the first query statement and provide a first ranking with respect to the query statement, and having the second person, independent from the first person, consider the second query statement and provide a second ranking;

creating a comparison as a function of time of the first and second rankings relative to the AV data file; and

displaying on a display of the computer system the comparison as a function of time of the first and second rankings relative to the AV data file,

wherein periods of similarities and differences between the first and second rankings are displayed on the display of the computer system for being observed and discussed, which becomes points of learning.

21. The method in accordance with claim **20**, wherein the query statement includes a request to assume a viewpoint.

22. The method in accordance with claim **21**, wherein the viewpoint is one of a self-view, an other-view, and a social view.

23. The method in accordance with claim **21**, wherein the query statement includes a statement to consider when creating the first and second rankings.

24. The method in accordance with claim **20**, wherein the query statement includes a statement to consider when creating the first and second rankings.

25. The method in accordance with claim **20**, wherein the query statement includes a viewpoint which is one of a self-view, an other view, and a social view, and

the query statement also includes a statement with respect to the viewpoint,

said method further comprises changing the query statement a plurality of times during the playing at least the portion of the AV data file.

26. The method in accordance with claim **20**, further comprising:

obtaining a second video data and a second audio data of the at least one of the first and second persons during the displaying to at least one of the first and second persons the comparison as a function of time of the first and second rankings relative to the AV data file, wherein the second video data includes an image of an interface of the computer system controlled by the at least one of the first and second persons; and

combining the second video data and the second audio data to a second AV data file and storing the second AV data file in the computer system.

27. A method of analyzing data gathered by a personal relationship learning tool, the tool including a data gathering system that gathers data about persons during a conversation

among them and a computer system connected to the data gathering system for receiving the data and storing, the tool further including a ranking system which allows at least some of the persons to independently rank first and second query statements with respect to the conversation, the method comprising:

playing the stored data with the computer system to allow one of the persons to rank a first query statement with the ranking system to obtain a first ranking and to allow another of the persons to rank a second query statement with the ranking system to obtain a second ranking;

creating with the computer system a comparison as a function of time of the first and second rankings relative to the conversation among the persons; and

displaying with the computer system the comparison as a function of time of the first and second rankings relative to the conversation among the persons,

wherein periods of similarities and differences between the first and second rankings are displayed on a display of the computer system for being observed and discussed, which then become points of learning.

28. A non-transitory computer readable storage medium storing a set of instructions which when executed by a computer system implement a method for analyzing data gathered by a personal relationship learning tool, the tool including a data gathering system that gathers data about persons during a conversation among them and the computer system connected to the data gathering system for receiving the data and storing the data, the tool further including a ranking system which allows at least some of the persons to independently rank first and second query statements with respect to the conversation, the method comprising:

playing the stored data with the computer system to allow one of the persons to rank a first query statement with the ranking system to obtain a first ranking and to allow another of the persons to rank a second query statement with the ranking system to obtain a second ranking;

creating with the computer system a comparison as a function of time of the first and second rankings relative to the conversation among the persons; and

displaying with the computer system the comparison as a function of time of the first and second rankings relative to the conversation among the persons,

wherein periods of similarities and differences between the first and second rankings are for being observed and discussed, which then become points of learning.

29. A non-transitory computer readable storage medium comprising a stored audio-video (AV) data file and a stored associated ranking data file, wherein the associated ranking data file is associated to the stored AV data file as a function of time of the stored AV data file, wherein the stored AV data file and the stored associated ranking data file have been gathered about persons during a conversation among them by using a learning tool including a computer system connected to a data gathering system for receiving AV data and storing the AV data as the stored AV data file by the computer system, the learning tool further including a ranking system which allows at least some of the persons to independently rank first and second query statements with respect to the conversation which is stored as the stored associated ranking data file by the computer system.

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